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See Also SAUNDERS ADVERTISEMENT—Page 3

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THE TREATMENT OF ECLAMPSIA

CHAIRMAN'S ADDRESS

PIERCE RUCKER, M.D.
RICHMOND, VA.

Eclampsia is still a major problem in obstetrics. In the time at my disposal I propose to discuss its treatment. I shall limit myself to cases of actual puerperal convulsions. Not that eclampsia without convulsions or preeclampsia is not as important or as dangerous. In the first place the convulsive type is more clear cut and there is scarcely any question of diagnosis. In the second place the therapeutic problem is different. When convulsions are present, one naturally has an urge to energetic treatment which is egged on by the patient's relatives and friends. One simply has got to do something. In preeclampsia, on the other hand, it is frequently hard to make the patient realize that she is seriously ill, and one has to overcome her resistance to treatment of any sort.

Treatment naturally divides itself into two parts: (1) preventive and (2) curative. In no disease is the old adage that "an ounce of prevention is worth a pound of cure" more true than with eclampsia. With good antepartum care one can in the vast majority of cases recognize the premonitory signs and symptoms in time to avoid convulsive seizures. A rise in blood pressure or an unusual gain in weight is a warning that treatment should begin. If the patient does not improve with rest in bed, a milk diet and possibly the exhibition of calcium by mouth or intravenously; or, if albuminuria appears, the uterus should be emptied. A patient who carries a hypertension for three weeks is apt to have permanent damage.

Whereas there is a general unanimity of opinion with regard to the preventive treatment, when one comes to curative treatment of eclampsia that is another matter. I was taught that, as the cause of eclampsia was in some way connected with the presence of the fetus, the proper treatment was to terminate the pregnancy as quickly as possible. By getting rid of the cause, one cured the disease. The standard method was accouchement forcé, which was later supplanted by cesarean section. This method was so standardized that I followed it blindly for years. When I counted up my results I was surprised to find that I had lost 31.6 per cent of the mothers. I then went through the era of morphine, colonic irrigation and gastric lavage, with a maternal mortality of 25.9 per cent. The first effective means of controlling convulsions was magnesium sulfate given intravenously. Its use tremendously simplified the treatment of this condition. Since the appearance of Lazard's article in 1925, I have treated 129 consecutive cases of eclampsia with a maternal mortality of 4.65 per cent. It is to the treatment of these 129 cases that I want particularly to direct attention.

Of the 129 patients, seventy were white and fifty-nine were colored. The ages varied from 12 years to 40 years, the average being 23.7 years. Eight white patients were unmarried and twenty-five of the Negroes were unmarried. There were fifty white primiparas and forty-four colored primiparas, a total of ninety-four primiparas, or 73 per cent.

No attempt was made to classify the convulsions into antepartum, intrapartum or postpartum for the reason that in many cases no adequate history could be obtained. Many patients were brought into the hospital in coma or convulsions by the ambulance and no one seemed to know much about the case. For the same reason I have not been able to classify all the cases according to their severity. The total number of convulsions in many cases is unknown. At least forty-one cases were severe according to Eden's classification. There were six maternal deaths, five of which occurred in the severe type. These deaths were discussed in a previous paper.[1] Briefly, two cases, 10 and 15 of my series, were treated with morphine and high colonic irrigations. One mother died of pneumonia on the fourteenth day after a spontaneous delivery. She had antepartum convulsions, which were easily controlled with magnesium sulfate intravenously. The fourth case was also a septic death. The patient was delivered by cesarean section after a trial labor of fifty-two hours, several days after the convulsions were stopped. She died of peritonitis on the third day. The fifth maternal death was that of an epileptic with superimposed puerperal convulsions. I was unable to control the convulsions, and the patient died undelivered ten hours after admission to the hospital. The last maternal death was of a patient who was admitted to the hospital in May 1929. She had had twelve convulsions before she was put to bed in the hospital. Magnesium sulfate intravenously failed to stop the convulsions. The spinal fluid was cloudy and under a pressure of 240 mm. of water. I delivered her of a stillborn baby by version under spinal anesthesia. The patient continued to have convulsions and died two and a half hours after delivery. Three mothers had twins. Stroganoff[2] in a recent paper reported a high maternal mortality in twin cases treated with magnesium sulfate. This is contrary to my experience. All three mothers, as well as the six babies, recovered. In eleven cases of mothers brought into the hospital after the baby was born, there is no record of the baby. Sixty-five babies left the hospital alive and fifty-six babies were lost, a fetal mortality of 46.6 per cent.

Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1937.

1. Rucker, M. P.: Virginia M. Monthly **61**: 384 (Oct.) 1934.
2. Stroganoff, W., and Davidovitch, O.: J. Obst. & Gynaec. Brit. Emp. **44**: 289 (April) 1937.

In the group of severe eclampsia there was one set of twins and two babies whose outcome was not recorded. Twenty-four babies in this group were lost and sixteen left the hospital alive, a fetal mortality of 60 per cent. Even more striking is the fetal loss in the cases in which the maternal systolic blood pressure went over 200 mm. of mercury, whether they had any of the other stigmas of severe eclampsia or not. There were twenty-three such cases with fifteen fetal deaths, six live babies and two unrecorded, a fetal mortality of over 71 per cent.

TREATMENT

In the treatment of these cases, I have not followed slavishly a routine but have been guided by certain principles. Mine consist of four: (1) stopping the convulsions, (2) good nursing care with emphasis on rest, (3) promoting kidney activity, and (4) digitalis.

Magnesium sulfate intravenously has been remarkably efficient in stopping convulsions. My initial dose is 20 cc. of a 10 per cent solution. Frequently I have given a second dose of 15 cc. and occasionally a third dose of 15 cc. In a few cases I have used 7½ grains (0.5 Gm.) of sodium amytal intravenously. I prefer the magnesium sulfate to the sodium amytal, because the former wakes the patient up when it stops the convulsions and the latter puts her to sleep. In such an event it is hard then to know whether the patient is comatose or simply drugged. Nevertheless, sodium amytal is a drug to have around, because occasionally one drug will control the convulsions when the other will not.

Under the head of good nursing care comes the avoidance of external stimuli, such as bright light, noises and jarring the bed. The patient should be kept on her side to lessen the chance of aspirating vomitus and other fluids in the mouth. The tongue should be protected during the clonic stage of a convulsion, and the nurse should be prepared to give artificial respiration if it should be necessary. Too much emphasis cannot be placed on rest. For this reason I am opposed to colonic irrigations, gastric lavage and purgatives. These patients are desperately ill and need all the rest they can get.

I feel very much better when the patient is putting out a good quantity of urine. Usually I rely on water or cream of tartar lemonade to promote kidney activity. The best way to give fluids to an eclamptic patient is by the stomach. If the patient is not awake enough to drink, one can slip a nasal tube into the stomach and pour in a pint of fluid every eight hours. When there is anuria or marked oliguria I resort to dextrose intravenously, varying the strength according to whether there is much or little edema present.

Digitalis has a definite place in the treatment of eclampsia. I give half a cat unit dose as soon as possible after I have given the magnesium sulfate or sodium amytal. I have never seen edema of the lungs when digitalis has been given. In this connection the recent report of Ware and Noblin[3] is especially interesting, as a large part of my series is composed of patients treated at St. Philip's and Memorial Hospital immediately prior to the time covered in their report. In 1931 and 1932 when they used morphine, bromide and chloral their mortality was 25.53 per cent. In 1933, 1934 and 1935 they used magnesium sulfate, dextrose and digitalis and their mortality dropped to 6.88 per cent. Dr. Ware tells me that in 1935 and 1936 he treated thirty-seven eclamptic patients with only one maternal death. In other words, at the Medical College of Virginia Hospitals I was treating eclampsia with magnesium sulfate, rest and digitalis, with a maternal mortality of 5 per cent. The treatment was then changed to morphine, bromides and chloral and colonic irrigations and the mortality rose to 25 per cent. The treatment was then changed back to practically the same as before and the mortality dropped to practically the same figure.

I have said nothing about delivery or terminating pregnancy, for the reason that I believe it has no place in the treatment of eclampsia. The patients who go into labor should be treated as conservatively as possible, which means in most cases episiotomy and low forceps under local anesthesia. When antepartum eclampsia is relieved and the patient is putting out a good quantity of urine, then comes up the question of terminating pregnancy. Unless one has exceptionally good control of the patient, it is unwise to let the patient leave the hospital undelivered. No eclamptic or recent eclamptic patient should have a general anesthetic.

SUMMARY

A series of 129 consecutive cases of eclampsia have been treated with an uncorrected maternal mortality of 4.65 per cent. The guiding principles in the treatment of these patients have been (1) stopping the convulsions with intravenous magnesium sulfate or sodium amytal, (2) the greatest possible amount of rest, (3) promoting kidney activity with fluids by mouth or dextrose solution intravenously, and (4) adequate dosage of digitalis.

116 East Franklin Street.

3. Ware, H. H., Jr., and Noblin, Frances E.: South. M. J. **30**: 153 (Feb.) 1937.

ACTIVE IMMUNIZATION OF TUBERCULOUS CHILDREN AGAINST WHOOPING COUGH WITH SAUER'S VACCINE

MORRIS SIEGEL, M.D.
AND
ESTHER W. GOLDBERGER, M.D.
NEW YORK

Shortly after Sauer's early reports of his success in the prevention of whooping cough with doses of 80 billion bacilli of an unwashed vaccine prepared from freshly isolated strains of Haemophilus pertussis, it was decided to test the effectiveness of the vaccine at Sea View Hospital under adequate control conditions.

At Sea View Hospital tuberculous persons of all ages are admitted from hospitals and homes of New York City and hospitalized for the duration of their illness. In the pediatrics service there are almost 200 patients under 16 years of age with tuberculosis or suspected of having tuberculosis. The average duration of hospitalization for the tuberculous children is about two years. Newly admitted children are kept in the pediatrics admitting ward for several weeks and are then transferred to one of the other wards. For those over 6 years of age there is a separate ward for boys and girls. They intermingle in the hospital school. For the children under 6 years of age there is one ward for infants, boys under 3 years and girls under 6 years of age, and another ward for boys between the ages of 3 and 6 years. These younger children remain in their respective wards throughout the day. They are in

From the Pediatrics Service of Dr. Bela Schick, Sea View Hospital, Staten Island.

intimate contact with one another but do not mingle with children in other wards. Those with positive sputum are separated from the others in each ward. In addition there is a ward for those with bone tuberculosis and a small ward for normal infants vaccinated with BCG. Visitors are allowed daily between 3 and 5 p. m. Children are not permitted to visit the wards.

Since several cases of whooping cough occurred among our younger children in 1931 and in 1934, we felt that there might be another outbreak in two or three years. This would give us the opportunity to test the effectiveness of Sauer's vaccine under known conditions of prolonged and intimate exposure during the catarrhal stages of the disease before the diagnosis is made and when the disease is most contagious, and to compare the outcome among vaccinated and nonvaccinated children living under similar conditions of exposure.

Unfortunately it is difficult to obtain comparable conditions in respect to exposure among vaccinated and control children in studies among children in the general population. In such studies it is particularly difficult to evaluate the degree of exposure among children under investigation unless familial exposure occurs. When there is no familial exposure, it is possible to follow up large groups of children for long periods of time without finding a single undoubted exposure. In cases in which extrafamilial exposure is reported, it is often difficult to determine the degree of the exposure or to be certain that the disease was in its communicable phase when contact took place, even though whooping occurred at the time. It is common knowledge that the infectivity of whooping cough diminishes with the duration of the disease and that a paroxysmal cough can be observed long after the disease has ceased to be infectious. Because of this, reports of extrafamilial exposure not only lose much of their significance as tests of the effectiveness of the vaccine but also can be highly misleading.

Since the degree of exposure varies considerably among the children in a study, and since many children never develop recognizable symptoms of whooping cough, it is obviously essential to choose systematically during the periods of vaccination an adequate number of unvaccinated children as controls if the truth is to be learned about the value of vaccines in whooping cough prophylaxis. This need for adequate controls in the study of whooping cough prophylaxis is well illustrated by the reports of from fifteen to twenty years ago. At that time, when there were no controls, protection was reported in from 90 to 100 per cent of the children [1] to whom doses varying from 50 million to "large" doses of 3½ billion bacilli were administered. When controls were used,[2] the vaccine was found to have little or no prophylactic value.

Similarly, no complete prophylactic value was reported by Madsen [3] in 1925 and 1933 in epidemics in the Faroe Islands in which doses of 22 billion bacilli were employed. However, Madsen stressed the fact that the disease was milder and of shorter duration among the vaccinated and that the mortality in the vaccinated group was "one sixteenth of that in the nonvaccinated group." Sauer's [4] reports since 1933 as to the prophylactic value of 80 billion bacilli seem convincing, except for the fact that he does not fully discuss his results in an adequate number of control children. The same criticism holds for the reports by others who have thus far published favorable results with his vaccine.[5] This is unfortunate and detracts from the value of their work. Of significance in this respect is not only the experience of twenty years ago, as already mentioned, but particularly the recently published work of Doull, Shibley and McClelland.[6] These investigators found that their whooping cough vaccine prepared of recently isolated strains and administered in a dose of 80 billion bacilli had virtually no prophylactic value, for they had almost as many occurrences among their vaccinated children three months or more after vaccination as among their control children. Their impression was that the disease tended to be milder among the vaccinated children.

In our study at Sea View Hospital we limited ourselves to a small group of children who were known to have had no past history of whooping cough. Approximately half of this group were given the vaccine and the remainder were considered as unvaccinated controls. The vaccinations were begun in August 1934. The children received Sauer's authorized commercial vaccine in the recommended dose of 80 billion bacilli administered subcutaneously. The required dose of 8 cc. was given in three successive weeks in divided amounts of 2, 3 and 3 cc. as advised by Sauer. The vaccine was sent to us on the suggestion of Dr. Sauer.[7] It had to be assumed that this vaccine authorized by Sauer fulfilled all the requirements established by him.

TABLE 1.—*Time of Vaccination*

	Children
August 1934	30
March 1935	29
July 1935	20
December 1935	14
April 1936	8
Total	101

In an effort to maintain an approximately equal number of vaccinated children and unvaccinated controls of similar ages in each ward at all times, suitable children were selected for vaccination at varying intervals between August 1934 and April 1936,[8] shown in table 1. About two thirds of the vaccinated children were under 6 years of age; the average age for the entire group at the time of vaccination was 3.1 years. There were eighty-two children designated as controls. Their average age was 2.7 years.

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3. Madsen, Thorvald: Whooping Cough—Its Bacteriology, Diagnosis, Prevention, and Treatment, Boston M. & S. J. **192**: 50 (Jan. 8) 1925; Vaccination Against Whooping Cough, J. A. M. A. **101**: 187 (July 15) 1933.

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6. Doull, J. A.; Shibley, G. S., and McClelland, J. E.: Active Immunization Against Whooping Cough, Am. J. Pub. Health **26**: 1097 (Nov.) 1936.

7. Eli Lilly & Co. supplied the vaccine.

8. Dr. Bella Singer and Dr. Jeanne E. Shore aided in the administration of the vaccine.

Vaccinations were not given after April 1936, because an outbreak of whooping cough occurred during the late spring and early summer. The first case was diagnosed May 15 in a child, aged 3½ years, who was admitted May 1. The last case was recognized August 19. The duration of the epidemic period was about three and a half months. During this period there were twenty-seven occurrences of whooping cough in an exposed group of sixty-four children (42.1 per cent), 6 years of age or less. The high attack rate was expected, for the children were largely runabouts in close contact with one another during the day and exposed during the catarrhal stage when the disease is most communicable. Isolation was instituted in individual cases when symptoms suggestive of whooping cough were noticed. In all, thirty-three children were isolated. The characteristic whoop and lymphocytosis developed in twenty-seven children. These were considered as undoubted cases of whooping cough. Five other children had lymphocytosis and cough but no whoop. Since cough plate cultures were not made, the cases were considered as probable whooping cough. The remaining child had a cough which was associated with an exacerbation of his tuberculosis. Since there was no change in the lymphocytic ratio, he was not considered as having whooping cough.

TABLE 2.—*Age Distribution*

Age in Years	Vaccinated Children	Controls
1	2	7
2	4	6
3	2	2
4	4	2
5	2	0
6	3	2
Total	17	19

For purposes of study, a grouping of the sixty-four exposed children showed that there were sixteen children with a past history of whooping cough, twelve children with a questionable history of whooping cough, and thirty-six children with no past occurrence of whooping cough.

Only the thirty-six children who were known to have had no past history of whooping cough were included in our study. The remaining twenty-eight children were excluded from our study because they had had whooping cough or their past history of whooping cough was either questionable or unobtainable.

There were seventeen vaccinated and nineteen control children among the thirty-six exposed children under consideration. There were fourteen boys and three girls in the vaccinated group and twelve boys and seven girls in the control group. The ages varied from 1 to 6 years. The average age for the vaccinated children at the time of vaccination was 2.8 years. At the onset of the epidemic the average age was 4.2 years for the vaccinated and 2.3 years for the nonvaccinated children. The age distribution in both groups at this time is given in table 2. The majority of the control children were less than 3 years of age, while the majority of the vaccinated children were 3 years of age or older.

The nature of the tuberculous lesion was quite similar in the two groups. There were eleven vaccinated and twelve control children with primary pulmonary tuberculosis, three vaccinated and two control children with hilar lymph node tuberculosis, one vaccinated and two control children with destructive pulmonary tuberculosis and one child in each group with tuberculous pleurisy with effusion. In addition, one control child had miliary tuberculosis, and another had Still's disease, and one vaccinated child was a normal infant who had received BCG vaccination about six months prior to the whooping cough vaccination.

There were five characteristic cases of whooping cough among the seventeen exposed vaccinated children (29 per cent)[9] and ten among the nineteen exposed control children (53 per cent). In all of these fifteen occurrences a paroxysmal cough, whoop and lymphocytosis were present.

As already mentioned, five other children in this group of thirty-six had a lymphocytosis and cough but no whoop. In the absence of cough plate cultures it was thought permissible to consider them as probable cases of whooping cough. They probably had an abortive form of the disease, which is not at all uncommon. Four of these children were vaccinated (24 per cent) and one was a control child (5 per cent). If characteristic and probable cases of whooping cough are combined, there were nine cases among the seventeen vaccinated children (53 per cent) and eleven among the nineteen control children (58 per cent). The clinical data relative to these twenty cases are shown in table 3.

The five vaccinated children in whom characteristic symptoms of whooping cough developed were from 2 to 3 11/12 years of age at the time of vaccination. Their average age at the time of onset of whooping cough was 4 years, as compared with 2.5 years in the control group. The time interval between the completion of vaccination and the onset of symptoms of whooping cough was three months in one case, twelve months in three cases and sixteen months in another case. The types of tuberculous lesions in these five cases were primary pulmonary tuberculosis (three cases), hilar lymph node tuberculosis (one case) and destructive pulmonary lesion (one case). The attack of whooping cough seemed to have no apparent ill effect on the pulmonary tuberculosis in any of these cases.

The ten nonvaccinated control children in whom characteristic symptoms of whooping cough developed varied in age from 1 to 4 years; their average age at the onset of symptoms was 2.5 years. The types of tuberculous lesions in these ten cases were primary pulmonary tuberculosis (six cases), destructive pulmonary lesion (two cases), hilar lymph node involvement (one case) and miliary tuberculosis with extensive pulmonary tuberculosis (one case). The attack of whooping cough seemed to have no apparent ill effect on the pulmonary tuberculosis in any of these control cases except for one case (table 3, case 6), in which the development of whooping cough might have hastened the death of the child.

Among the five children who have been grouped separately as probably having whooping cough, there were four vaccinated children and one control child. Three of the four vaccinated children were less than 2 years old at the time of vaccination. All the vaccinations were given in December 1935, about seven months before the onset of symptoms.

An accurate evaluation of the severity of whooping cough in the group of children with characteristic symptoms is quite difficult. The disease was mild in most of the children. It was of moderate severity in one vaccinated child (case 1) and in several control children (cases 8, 9, 10 and 11). One control child (case 6) died of miliary tuberculosis and extensive

9. Since the totals are small, the calculation of percentage is only a rough estimate.

pulmonary tuberculosis, which antedated the onset of whooping cough. In view of his extensive tuberculosis it was impossible to determine accurately the severity of the whooping cough or the effect on the tuberculous process.

In two of the children who were vaccinated the disease was very mild (cases 2 and 3). The average duration of the whoop was twenty-one days among the vaccinated children, as compared with thirty-two and a half days among the controls.

The average number of days during which the whoop was considered severe was two and eight-tenths days among the vaccinated as compared with seven and a half days among the controls. The disease, therefore, seemed somewhat milder among the vaccinated children than it did among the controls. The age of the children might have been a factor here, for all the vaccinated children in this group were 3 years of age or older, while eight of the ten control children were less than 3 years of age.

Twenty-eight exposed children were excluded from the study because they had had a past history of whooping cough (sixteen children) or because their past history of whooping cough was doubtful or not obtainable (twelve children). Their ages varied from 1 to 6 years, the average being 4½ years. There were eleven occurrences of typical whooping cough among these twenty-eight children (39 per cent). Five occurrences were among the sixteen children (31 per cent) with a past history of whooping cough. We do not know whether these cases are recurrences, for we are often doubtful of the diagnosis of whooping cough in the past history of our tuberculous children, because the paroxysmal cough of tuberculosis is frequently mistaken for whooping cough. There were six occurrences among the twelve children (50 per cent) in whom the past history of whooping cough was doubtful. The disease was mild in most instances. There were no complications.

Furthermore, there were fourteen vaccinated and twenty-four nonvaccinated control children over 6 years of age in the hospital during the epidemic, but they were not exposed to the disease. There were obviously no occurrences in this group, and they can be omitted from our discussion.

In addition, seventy vaccinated children and thirty-nine nonvaccinated control children had been discharged from the hospital before the onset of the epidemic. We succeeded in locating forty-six vaccinated children and twenty-two nonvaccinated controls. Of these, there were no known exposures to whooping cough and only one occurrence. In a nonvaccinated child whooping cough developed in September 1936, at the age of 3⅓ years, six months after his discharge from the hospital. Little significance can be attributed to the absence of whooping cough in the discharged vaccinated group of children because there was no known exposure.

TABLE 3.—*Clinical Data Relative to Twenty Children with Characteristic and Probable Whooping Cough*

Case	Name	Age*	Sex	Type of Pulmonary Tuberculosis	Date of Vaccination	Date of Onset of Symptoms	Interval Between Vaccination and Onset (in Mo.)	Duration of Whoop (in Days)	Days Whoop Was Severe	Total White Count	Lymphocytosis, per Cent	Comment
				A. Children with Characteristic Whoop (Undoubted Cases of Whooping Cough)								
1	C. A.	(2) 3	♂	Primary	7/35	7/ 7/36	12	46	10	41,200	56	
2	V. C.	(3 3/12) 3 6/12	♀	Primary	4/36	7/29/36	3	11	0	9,200	82	
3	E. H.	(3) 4 4/12	♂	Hilar	3/35	7/30/36	16	5	0	Not examined		
4	W. G.	(3 11/12) 4 11/12	♂	Destructive	7/35	7/30/36	12	20	4	Not examined		
5	R. T.	(3 11/12) 4 11/12	♂	Primary	7/35	7/28/36	12	24	0	13,150	47	
6	J. P.	1 1/12	♂	Miliary	Control	7/28/36	..	28 ?	5 ?	60,400	63	Died of tuberculosis
7	J. B.	1 7/12	♂	Primary	Control	7/ 1/36	..	18	4	10,050	65	
8	R. F.	1 7/12	♂	Hilar	Control	7/ 7/36	..	43	15	15,200	62	
9	A. G.	2 2/12	♂	Primary	Control	7/20/36	..	27	11	20,900	78	
10	D. T.	2 4/12	♂	Primary	Control	7/ 1/36	..	51	10	12,350	66	
11	M. M.	2 6/12	♀	Primary	Control	6/18/36	..	37	17	30,000	67	
12	J. N.	2 9/12	♂	Primary	Control	7/29/36	..	29	3	11,250	60	
13	L. J.	2 11/12	♂	Primary	Control	8/11/36	..	42	5	Record lost		Exacerbation of sinusitis
14	W. G.	4	♂	Destructive	Control	8/19/36	..	26	3	21,600	70	
15	A. F.	4 4/12	♂	Destructive	Control	7/28/36	..	24	2	38,000	56	
				B. Children with Cough and Lymphocytosis, but no Whoop (Probable Cases of Whooping Cough)								
16	C. D.	(1 10/12) 1 5/12	♂	Primary	12/35	7/28/36	7	0	0	17,400	61	Coughed 14 days
17	J. C.	(1 5/12) 2 1/12	♂	Hilar	12/35	8/19/36	8	0	0	17,350	61	Coughed 11 days
18	E. C.	(1 9/12) 2 4/12	♀	Primary	12/35	7/ 7/36	7	0	0	14,450	67	Coughed 7 days
19	P. C.	(3 5/12) 4	♂	Primary	12/35	7/26/36	7	0	0	14,250	64	Duration of cough unknown
20	R. G.	2 6/12	♂	Primary	Control	8/21/36	..	0	0	10,450	59	Duration of cough unknown

* Refers to the age in years at the onset of symptoms; the numbers in parenthesis refer to the age at the time of vaccination.

COMMENT

The relatively high incidence of whooping cough among our vaccinated children exposed to whooping cough in the wards might be due to (1) the presence of active tuberculosis in the vaccinated children, (2) the presence of a particularly virulent micro-organism or (3) the ineffectiveness of the vaccine in whooping cough prophylaxis.

There is at present no evidence to support the view that the presence of tuberculosis per se diminishes the effectiveness of whooping cough vaccines. Since there are no simple, reliable tests of immunity to whooping cough, the relationship of tuberculosis to whooping cough immunization remains obscure. By means of serologic tests it was found that tuberculous children under our observation responded to the whooping cough vaccine much like normal children. The complement fixation test[10] was strongly positive one week

10. The serologic tests in these cases were performed by Dr. Manfred Weichsel of the Department of Bacteriology, New York University Medical College.

after completion of vaccination and remained positive in tests done one month after the last dose of vaccine. These results are comparable to those obtained in normal children and indicate that the vaccine readily stimulated the formation of specific antibodies in our tuberculous children. Furthermore, in our vaccinations against a disease such as diphtheria, the results of which can be well controlled by a simple skin test, we have had no difficulty in immunizing our tuberculous children with diphtheria toxin-antitoxin or with toxoid, as determined by the conversion of a Schick positive reactor to a Schick negative reactor.

Another possibility in explanation of the failure of the vaccine is the presence of an unusually virulent micro-organism during the epidemic. There seems to be no evidence in support of this view. The disease was mild in most of the children. There were no complications and no deaths due to a severe attack of whooping cough.

It seems that the attack rate was high not so much because of the presence of tuberculosis or of an unusually virulent micro-organism but because of the high degree of exposure of incompletely protected children. This is seen in other acute infectious diseases. In measles, for example, Karelitz and Schick [11] pointed out the increased difficulty of protecting children under conditions of intensive exposure and the consequent need for larger doses of immune serum. Under the conditions of exposure that prevailed at the hospital, the authorized commercial vaccine in a dose of 80 billion bacilli was ineffective in preventing the development of symptoms. However, although the vaccine did not prevent the development of symptoms, it seemed to be of some value, because the symptoms were, on the whole, less severe and of shorter duration among the vaccinated children than among the nonvaccinated children used as controls.

In this discussion we have omitted the question of the duration of immunity after vaccination. In our opinion, this problem has not been adequately studied. It is important, because active immunity produced by bacterial vaccine is short lived. It is advised, for example, that typhoid vaccination be repeated every two years. The long lasting immunity that follows recovery from an attack of typhoid or whooping cough does not indicate that an immunity of equal duration will result after vaccination.

TABLE 4.—*Results Among Vaccinated and Nonvaccinated Control Children Exposed to Whooping Cough at Sea View Hospital*

		Effects of Exposure to Whooping Cough							
		Children with Characteristic Whoop		Children with Cough and Lymphocytosis		Total Number of Children with Symptoms		Children Without Symptoms	
	Number of Exposed Children in Study	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
Vaccinated children.....	17	5	29	4	24	9	53	8	47
Nonvaccinated children.....	19	10	53	1	5	11	58	8	42

SUMMARY

From August 1934 to April 1935, 101 tuberculous children at Sea View Hospital were vaccinated with 80 billion bacilli of Sauer's authorized commercial vaccine.

In a group of seventeen vaccinated and nineteen nonvaccinated tuberculous children intimately exposed in the hospital during the catarrhal stage of whooping cough, characteristic whooping cough developed in five (29 per cent) of the vaccinated children and in ten (53 per cent) of the nonvaccinated controls, while lymphocytosis and cough, but no whoop, occurred in four (24 per cent) of the vaccinated children and in one (5 per cent) of the control children (table 4). There were eight children without symptoms in the vaccinated group (47 per cent) and an equal number in the control group (42 per cent).

CONCLUSION

1. Sauer's authorized commercial vaccine, in a dose of 80 billion bacilli, did not seem to prevent the development of symptoms in a group of vaccinated tuberculous children exposed to whooping cough at Sea View Hospital.

2. The symptoms seemed, on the whole, to be milder and of shorter duration among the vaccinated children than among the nonvaccinated children used as controls.

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11. Karelitz, Samuel, and Schick, Bela: Epidemiologic Factors in Measles Prophylaxis, J. A. M. A. **104:** 991 (March 23) 1935.

NURTURING A NATIONAL NEUROSIS

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In this supposedly modern age of psychiatry it is indeed inconsistent and somewhat startling to find that the government of an enlightened country is foisting upon its citizens a state akin to a national neurosis. Reference is made to the manner in which the Veterans' Administration disposes of those individuals who come under its jurisdiction with ills that might be included under the heading of psychoneurosis.

We are uninformed whether or not a somewhat comparable situation developed, psychiatrically speaking, after previous campaigns involving this country. There is no reason to believe that such was not the case; but that the neuroses were encouraged and provided with such fertility in which to develop as they were after the World War is unlikely. It is probable that no precedent was set for the psychiatric confusion in which the Veterans' Administration now finds itself. The experience of other governments with this problem should not have been overlooked, for they had had three years of war behind them when the United States became involved, and their physicians had been stimulated thereby to numerous publications on such subjects as "war neuroses," "soldier's heart," "shell fright" [1] and the like (see especially Hurst,[2] Mott [3] and Marr [4] and particularly the references contained in the first two works).

The authors served consecutively as neuropsychiatric specialist in the Cincinnati Regional office of the Veterans' Administration for a period of fifteen months.

1. It has been suggested that if men suffering from "shell shock" had been labeled originally "shell fright" and made to wear a badge there would be far fewer of them today. A physician with one of the Scottish regiments has stated that the medical men of this particular regiment did not recognize "shell shock," with the result that the incidence of men presenting themselves with the signs of "shell shock" was reduced to near zero.

2. Hurst, A. F.: The Psychology of the Special Senses and Their Functional Disorders, London, Oxford University Press, 1920.

3. Mott, F. W.: War Neuroses and Shell Shock, London, Oxford University Press, 1919.

4. Marr, H. C.: Psychoses of the War, Including Neurasthenia and Shell Shock, London, Oxford University Press, 1919.

It is difficult to believe that the government made practically no provision for the treatment of what was to be one of the most disabling of the illnesses arising out of the late war (table 1). This is especially noteworthy in light of the rise of psychiatry and the spread of psychotherapeutic technic into medical consciousness which occurred before the war. Possibly rules were made to cover (considering the political penchant for making rules), but they never reached fruition, they got no further than the rule books and so did nobody good except possibly those who drew a salary for spreading them on the records.

A veteran may present himself with appendicitis and have the appendix removed at the expense of the government years after he served in the army, and the same holds true for remedial measures directed against any of the physical ills that beset man.[5] But let him present himself with a neurosis, be it mild or severe, and he is treated generally speaking by the methods in vogue a hundred years ago if at all. The attitude that permeates the veteran facilities as regards the neuroses is indeed a pitiful one and we believe has developed gradually for several reasons which will now be discussed.

In formulating the regulations for the compensation of disabilities arising from the World War, an omnipotent individual or group of individuals decided that all cases of psychoneurosis "of 10 per cent or more" originating within five years after the close of the war were "service connected," that is, the illness originated or was augmented as a direct result of service in the armed forces and therefore an individual so affected should be compensated.[6] On the basis of this ruling it can be seen without too much thought that a veteran with a psychoneurotic disorder must be compensated regardless of when the disabling symptoms made their appearance. No one of us can remember any period of months in his life during which he was entirely free from "nervousness," and all of us should be able to produce reasonable affidavits (medical and lay) proving the fact. This becomes increasingly simple when one has numerous acquaintances and is handling implements of war. Disregarding the verbiage quoted and descending to sound psychiatry, all life experience contributes to the psychic organization of the individual, and if a neurosis develops any time after serving in the forces, this service can be said to have contributed to the disorganization. There is no point in delving into the question of how much was contributed toward the psychoneurotic state by three months in an army camp or a year on the battle fields, or by school and occupational experiences for that matter. Despite the occult powers assumed by some psychiatrists (experts found wandering but still capable of speech[7]) it is doubted that the reasonable members of the order would be willing to be judged by a statement that a specific experience did or did not augment or originate the psychoneurosis. That the specific experience, regardless of what it was, did contribute there cannot be much doubt.

Continuing the fallacious reasoning noted in the first portion of the foregoing paragraph the Veterans' Administration decided that psychoneurotic individuals were divisible into three great groups, namely, severe, moderate and mild (and should be compensated accordingly), depending on the amount of social and industrial incapacity caused by the illness, disregarding the individual psychobiology. It is not difficult to see what this ruling connotates. This was a definite step toward fixing the neurosis, toward making certain that it would never be amenable to treatment; in fact, it was the one infallible manner in which the administrators could be sure that the illness would be progressive. If the monetary reward is the greater the more severe the neurosis, what has the psychiatrist to offer in comparison?

TABLE 1.—*Examinations During One Year* *

No neuropsychiatric disability	147
Schizophrenia	25
Psychoneurosis	
Mild	33
Moderate	100
Severe	34
Anxiety state	5
Post-trauma	5
Mental deficiency	
Not rated	13
Low average intelligence	2
Moron	2
Imbecile	1
Mental deficiency with psychosis	1
Psychopathic personality (one alcohol, one marihuana addict)	7
Manic-depressive psychosis	8
Malingering	1
Psychosis type undetermined	1
Toxic psychosis	1
Sciatic neuralgia (usually secondary to arthritis)	10
Nerve injury (trauma)	12
Acute alcoholism	1
Chronic alcoholism	16
Alcoholic psychosis	2
Trioorthocresyl phosphate poisoning (jamaica ginger)	4
Central nervous system syphilis	
Unclassified	13
Meningitis	1
Dementia paralytica	9
Tabes dorsalis	5
Tabetic dementia paralytica	1
Cerebral thrombosis (disregarding cause)	14
Brain injury (old)	2
Old subdural hemorrhage	1
Spinal cord injury	1
Senility	13
Epilepsy (one post-traumatic)	20
Postencephalitic parkinsonism	5
Paralysis agitans	2
Multiple sclerosis	7
Dystrophia myotonica	2
Amyotrophic lateral sclerosis	2
Diabetic neuritis	2
Multiple neuritis	4
Migraine	3
Adenoma of pituitary	2
Adenoma of thyroid (nontoxic)	2
Hyperthyroidism and one each of the following: slight hypertrophy of thyroid, subacute combined sclerosis, spastic paraplegia (cause undetermined), neurofibromatosis, optic atrophy of undetermined cause, vasomotor signs (residuals of frost bite), congenital cranial nerve palsies, fixation of the cervical spine (Marie-Strümpell), peroneal muscular atrophy, Ménière's syndrome, brain tumor-metastatic melanoma, and dyspituitarism with multiple lipoma	2

* Results of 556 examinations performed from April 6, 1936, to April 5, 1937, by the neuropsychiatrist at the Cincinnati Regional office. These examinations were for compensation, for insurance or for the purpose of referral to a hospital and do not include those patients seen as outpatients. They do include a few veterans of the Spanish-American War. It will be noted that 43.3 per cent of all the cases showing a neuropsychiatric disorder were theoretically amenable to psychotherapy (those under the heading psychoneurosis). This figure compares with 35.7 per cent, which is derived by tabulating for a three months' period the diagnoses from other government facilities, who forwarded their records to the Cincinnati Regional office for rating.

5. The following statement by Pearsall of the Milwaukee facility of the Veterans' Administration is to the point: "I often wonder if veterans realize the magnificent insurance policy they hold with the government. An honorable discharge qualifies a veteran to go to a government hospital, stay as long as necessary, and if he passes on, his funeral expenses, burial, etc., are all taken care of by 'Uncle Sam.' If at the end of the hospital period he is unable to return home, he can go into domiciliary care. His transportation is paid both to and from the hospital, and that of an attendant if necessary. While in the hospital, he goes through one of the finest medical clinics in the country, equipped with the latest modern equipment, and receives care from superior doctors, nurses and other trained personnel. While there, if necessary, he is provided with good clothing, cigarets or smoking tobacco, razor, brush and comb, tooth brush, tooth paste, shaving cream and soap and numerous other articles. He has a marvelous library at his disposal, frequents entertainments of the highest order, and all this without the worry of how the bill is to be settled. To me, government hospital care is so superior that I would never consider entering even the most expensive hospital in the country. An insurance policy covering all the benefits given us by the government is not obtainable for any amount of money; and if one were, doubtless few of us would be able to pay the premium of such a policy, as it necessarily would have to cost very high. All veterans should think deeply of this advantage and feel grateful and thankful to our government for its thoughtfulness of us."—Pearsall, C. M.: The Value of Benefits Enjoyed by Veterans, M. Bull. Vet. Admin. **13**: 372 (April) 1937.

6. The following is the ruling: "The presumptive service connections have their origin in the amendment of August 9, 1921 (42 Stat. 147), which is an effort to bring within the law (War Risk Insurance Act) those veterans who were suffering with pulmonary tuberculosis and neuropsychiatric diseases, who could not produce sufficient evidence to show direct service connection, provided that, if they could show that they suffered from these diseases to an extent of 10 per cent disability within two years after separation from the service, they should be considered to have acquired the disease in service. This presumption was later extended by the amendment of June 7, 1924, so that veterans with certain diseases (tuberculous and neuropsychiatric) which developed to a disability of 10 per cent degree or more prior to Jan. 1, 1925, are presumed to have incurred the disease in the military or naval service."—Federal Laws Relating to Veterans of Wars of the United States, Senate Document 131, Aug. 2, 1932.

7. Grains and Scruples, Lancet **1**: 1483 (June 19) 1937.

Various veterans' organizations (Disabled Veterans of the World War,[8] American Legion, Veterans of Foreign Wars) and the Red Cross [9] have welded the second link of this chain. The veterans' organizations solicit the membership of veterans of the World War and will assist all veterans in the preparation of their claims for compensation, representing them before rating boards. They must of necessity use every legal device at their command to obtain compensation for their clients, and they are constantly exerting every pressure direct and subtle to have compensation awarded, or increased, and at the very least not decreased. One method utilized in an effort to increase compensation is to attempt to have so-called non-service connected disabilities which are not compensable classified as being due to that portion of the disability that is rated as "service connected." For example, if a veteran who has been compensated for psychoneurosis acquires some other condition years later, say hyperthyroidism, an attempt might be made to rate the thyroid condition as due to the psychoneurosis, the compensation for "services connected" disability being increased accordingly. This is but an example; however, the direct and precipitate factors incident to diseases peculiar to veterans and the element of time existing between them would make interesting reading but we haven't the space for this diversion. The veterans' organizations have taken the apparent stand, indirectly it is true, that nothing is curable (i. e., that the amount of compensation should never be reduced). Whether or not they have transmitted this attitude to the rating boards (it must be stated that we had direct experience with the functioning of the Cincinnati rating board only) is not known; if not, it has been developed spontaneously there. The board is always willing to award or increase compensation; to decrease it, as a rule, is a very involved procedure.[10] This influence is especially pernicious among individuals suffering from illnesses of a purposive nature; an improvement in their condition under these circumstances is out of the question.

Veterans' hospitals are scattered over the United States and all of these institutions have one or more neuropsychiatrists on their staffs. These physicians and hospitals are admittedly unequipped to care for the veteran with a neurotic disorder under the present state of affairs, for these individuals are discharged from these institutions after the diagnosis of psychoneurosis is made with the unfailing recommendation that treatment is not advised. This is a natural development under the handicap with which they work.

Despite the thoroughness with which the Veterans' Administration has gone about fostering neurotic disorders in their charges, one occasionally meets a veteran who has not become completely dominated by the situation and who desires help. He may be sent to a veterans' hospital [11] where he may receive bromides or phenobarbital, or he may visit the neuropsychiatrist at the regional offices as an outpatient and receive the same treatment. A veteran with psychoneurosis having myriad somatic complaints said that he had been ill since leaving the army (about eighteen years ago) and that he had been in numerous government hospitals and had had seventy x-rays, yet only once did a physician mention the possible mental origin of his difficulties. He was receiving $100 monthly (for permanent and total,[12] "service-connected" disability) and that was all the Veterans' Administration had to offer him. This case is not at all unusual. A hernia may be repaired and syphilis cured, but the neuroses are only magnified under the present system and in fact are treated no better than they were a century ago.

THE MAZE OF GOVERNMENT EXAMINATIONS

It is interesting, albeit time consuming, to follow the ramifications of one of these individuals through the maze of government examinations (sine treatment). This does not include the numerous examinations by private physicians for the purpose of furnishing affidavits. The following case is not at all unusual. The story begins at the Verdun front, where the veteran's left leg was damaged by a solid shell. Amputation was performed at the middle third of the left thigh Oct. 11, 1918, at a French hospital. At the time of discharge, March 18, 1919, it was noted that an artificial limb had been fitted and that the patient was proficient in its use. He was receiving $25 monthly compensation for the loss of the limb. On April 25, 1919, it was noted that he had been unable to use his left arm for a long period following blood transfusion after the amputation, fair warning of what was to follow. During the remainder of 1919 and 1920 he was periodically examined at a government hospital, especial attention being given to the stump and artificial leg. In December 1920 a reputable neurologist noted that the veteran was suffering from "mild psychasthenia." It was noted that he complained of insomnia, headaches, nervousness, inability to concentrate and a sensation resembling that of "insects crawling" over

8. Seemingly the only qualification one must have to gain admittance to this organization is a disability after having served in the forces during the World War. One of us, attempting to determine what a veteran, an imbecile, did with his time and whether or not he was completely asocial, was amused to hear him declare that he had many friends, that the D. A. V. were constantly writing to him asking why he didn't show up for their meetings.

9. That a national organization supported entirely by private subscription should be spending some of its funds and time attempting to obtain compensation for veterans seems rather peculiar at first sight. But it must be remembered that Congress has declared the responsibilities of the Red Cross to be the service man, the ex-service man and the population in localities of disaster. Their point of view may be grasped when it is realized the Red Cross extends an interval type of relief to any veteran not entitled to relief from other agencies, until some other more permanent arrangement can be secured for the veteran. The most permanent and possibly that most readily obtainable is compensation on the basis of some disability, the Red Cross taking up the chore of proving it "service connected," which is the only type of disability compensable under the present laws. ("Disability allowance [as differentiated from disability compensation] provisions were enacted by the amendatory act of July 3, 1930 [46 Stat. 995].) This measure constitutes a departure from the theory upon which the original World War veterans' relief legislation was based in that it affords monetary benefits to veterans whose disabilities are not the result of service in the World War." This is as follows: "Any honorably discharged ex-service man who entered the service prior to Nov. 11, 1918, and served ninety days or more during the World War, and who is or may hereafter be suffering from a 25 per cent or more permanent disability, as defined by the director (administration), not the result of his own wilful misconduct, which was not acquired in the service during the World War, or for which compensation is not payable, shall be entitled to receive disability allowance of the following rates: 25 per cent disability, $12 per month; 50 per cent disability, $18 per month; 75 per cent disability, $24 per month; total permanent disability, $40 per month."—Federal Laws Relating to Veterans of Wars of the United States, Senate Document 131, Aug. 2, 1932.

10. The following note from the rating board (which consists of a physician, an attorney and a lay individual) illustrates the point: "To the neuropsychiatrist. The board notes that the examiner states that the disability, psychoneurosis, is temporary. The board wishes to know if a social service report was considered when making this statement. It shows more or less nervous trouble over several years' time. Your opinion is desired before completing the rating."

11. These institutions usually refuse to admit veterans with psychoneurosis within a short time after their discharge from a hospital, because they have received "maximum benefit from hospitalization."

12. It might be well at this point to note that a patois (possibly better termed a "lingo") has evolved in government service, which is a model of prolixity and circumlocution, although the users believe it definitive. Thus "permanent and total" disability rarely means what it says, for one is often able to reach "permanent and total" disability yet remain able to carry on a productive and gainful occupation or be suffering from a relievable illness (e. g., psychoneurosis). For example, a physician once drew maximum compensation for disability and at the same time practiced on a full time basis in a hospital. Some controversy ensued and the disability remuneration was discontinued, as it was less than his salary. If however, this individual relinquishes the practice of medicine he can receive immediate "permanent and total" disability benefits because of his illness.

his body. There then followed the examinations at regional offices and hospitals of the Veterans' Administration as shown in table 2.

At the time of the last examination the veteran was receiving disability compensation of $125 a month. He was told that he was fit at one of the latter examinations and on that basis thought he might get insurance but was refused by one of the large life insurance companies. In passing it is noted that he is unable to name a single thing that he does to pass his time. It should not be difficult to visualize the confusion in

TABLE 2.—*Government Examinations of a "Neurotic" Veteran*

Date	Diagnosis	Recommendation
12/14/20	Psychasthenia	
3/12/21	Psychasthenia	
3/24/21	Psychasthenia	Sedative, physical therapy
5/14/21	Psychasthenia, chronic articular rheumatism	
7/ 7/21	Psychasthenia	
10/24/21	Psychasthenia, mild	
12/ 9/21	Chronic articular rheumatism, psychasthenia, chronic amygdalitis	
12/13/21		Tonsil and adenoidectomy
1/13/21	Psychasthenia	
3/ 4/22	Chronic articular rheumatism Psychasthenia, amygdalitis	
5/11/22	Psychasthenia (improved)	
10/13/22	Psychasthenia with depression	A consultant recommended psychotherapy
11/ 6/22 to 12/11/22	Anxiety neurosis (I. Q. 86 at this hospital stay) "Neuropsychiatric symptoms are markedly aggravated by army service"	
1/ 2/23	Neurosis, post-traumatic	
1/22/23	Hysteria	Maximum improvement from hospitalization; not in need of outpatient or neuropsychiatric contact
6/29/23	Anxiety neurosis with depression and emotional instability	
7/ 2/23	Amputation left thigh, healed	
7/24/23	A. W. O. L.	
11/12/23	Post-traumatic neurosis with emotional instability and psychotic outbursts	
11/14/23 to 1/ 4/24	Chronic alcoholism; tachycardia; psychoneurosis, anxiety neurosis	
1/31/24	Dementia praecox, hebephrenic type; acute gonorrheal urethritis	
2/28 to 3/24/24	Barbital addict; A. W. O. L.	
9/15 to 9/23/24	Diagnosis undetermined	
1/10/25	No neuropsychiatric disability	
1/12/25	No neuropsychiatric disability	
4/ 5/25	No neuropsychiatric disability	
4/25/26	No neuropsychiatric disability	
4/15/32	Traumatic constitution with psychoneurotic manifestations and episodes of psychotic behavior ("attacks"—? hysteria)	
11/15/32	Same	
7/23/32 to 9/27/32	The foregoing plus mastoiditis, chronic bilateral; amputation of left thigh; otitis media, chronic bilateral; myopic astigmatism	
3/21/35	Traumatic constitution comparable to psychoneurosis, neurasthenic type, moderate; rheumatism, muscular and articular	
11/ 7 to 11/29/35	Psychoneurosis, anxiety type, moderate	Examinations do not indicate any need for hospitalization
4/ 5/37	Psychoneurosis; low average intelligence	

which such an individual finds himself, and we will pass over these details. Buffeted about, having his "reward for illness" periodically raised and lowered in amount for no apparent reason (actually on the basis of the diagnoses) and told nothing about the nature of his illness, he soon becomes a fairly useless individual as far as society is concerned.[13] It should be repeated for emphasis that this is not an unusual record of a "neurotic" veteran.

13. The following letter is from an invalid psychoneurotic veteran, who could probably be relieved in one's psychiatric practice yet is "permanently and totally" disabled as far as the Veterans' Bureau is concerned: "U. S. Veterans' Bureau: Dear Sir:—In reply to your letter asking me to be sent to the Hospital. I know my neural condition and I am sure the clinical examination would be more than I could stand. It is not that I don't wish to comply with your request, but that I would feel safer at home. It may be some kind of phobia. I seldom get out of sight of my wife—she seems to be my perfect sedative."

The family life of veterans suffering from psychoneurosis was inquired into both from the veteran and from the wife who occasionally accompanied them. These veterans as a rule report their families well and happy, but their wives tell a different story. It is not unusual for the wife when queried in private to note that a child is "just like his father," with many of the same somatic complaints, fears, food fads and addiction to medicines, and express rather indirectly her own dissatisfaction. This seemed significant, although we have no statistical data on the subject. It would well form an excellent subject for investigation. It is a remarkable fact that the majority of these men assume the additional responsibility of a wife (repeated marriages seemed quite high in these veterans) and numerous children, despite the lack of energy and numerous complaints leading to invalidism or semi-invalidism. We hold no brief for the strict environmentalist, but children raised in the enervating atmosphere created by these individuals are certainly not bettered by it. Imitation of parents is a large and recognizable factor in the mental development of all of us. The onus for sponsoring a national neurosis therefore is not too large an indictment, when one considers what is taking place in our national life as a result of this unenlightened method of the treatment of a large group of the psychically ill.

RESPONSIBILITY FOR THE SITUATION

Is the Veterans' Administration, whose budget runs about one-half billion dollars yearly, solely responsible for this deplorable state of affairs? The hand of the bureaucrat is evident in no small measure.

What of the physician in the full term service of the government? A *laissez faire* attitude is easily developed in this atmosphere which is extremely enervating, as the work and even the complaints of clients become unusually routine. It would be our thought that this is possibly the case under any political system of organized medicine, where everything is done in a predetermined manner and according to rules that are along mathematical rather than medical lines, where everything is settled and down to percentage figures, and where initiative and originality are stifled because of the set precedent or stereotyped manner which determines the method of procedure. It might be well to survey the amount and quality of investigative work coming from the Veterans' Administration as a rough index of initiative under regimentation. Griffith, the medical director of the Veterans' Administration, in the preface to the medical bulletin issued quarterly by this organization, notes in speaking of the Veterans' Administration and its Bulletin, and the opportunities for research and study within the organization, "It is evident that the field for investigation is unlimited, and that the opportunity to make helpful application of the conclusions reached is unprecedented." If this is true and when it is realized that physicians in these posts have more leisure than their practicing or academic colleagues, it would seem that they should be as productive if not more productive than their unregimented practicing colleagues, other factors being equal.

Does the veteran himself carry any responsibility for the situation? He and his representatives know that it exists and could remedy the condition if they so desired. But the individual point of view is so short sighted that it fails to see that his birthright, which consists chiefly of good health, is being frittered away for a mess of pottage. Perhaps the majority are com-

pletely uninterested; if so, their alleged representatives, their organizations, should interest themselves in the situation.

A great deal of responsibility must be laid at the door of the practicing physician. It would amaze those who set too high a store on the ability and integrity of physicians as a whole to read some of the ridiculous statements which they give to their veteran patients or send to the Veterans' Bureau. A great many of the records of veterans contain statements from practicing physicians which are either falsifications or direct evidence of incompetence. Some practicing physicians, like our government, rate their patients' disability in exact percentage figures and more often than not find corroborating evidence (which does not exist) for claimed disabilities. This evidence cannot be waived as coming from "quacks" [14] and "charlatans," [14] for although that would be the inference, the Veterans' Bureau does not accept medical, documentary evidence from other than licensed physicians.

PROCEDURE FOR THE FUTURE

What remedies are there to be offered to alleviate the present conditions or, to be a bit more practical, what should the procedure be when the situation again arises?

First, cases of psychoneurosis in veterans should be recognized early and treated properly. To assist the bureau in the determination of difficult cases, recognized specialists should be appointed to give an independent opinion on the complete evidence. This method is used by the English Ministry of Pensions [15] and is in vogue at the Veterans' Facility at Hines, Ill., whence comes some of the more valuable medical opinion rendered in the Veterans' Administration. We do not mean by the term specialist some one who has assumed the title. Those who are diplomates of the American boards or on the faculties of medical schools would be desirable.

Since experience has proved that the Veterans' Administration is not capable of properly treating psychoneurotic veterans, some method for their early treatment should be devised. We would think that this treatment might be best carried on by psychiatric practitioners on a fee basis. This does not mean that these patients should be referred to any physician at a nominal fee, as is now occasionally done, but rather they should be sent to those trained in the handling of the psychoneuroses, and at reasonable fees to attract competent men. This would entail no more expense than the present method over a period of years.

The problem of disability compensation is indeed a knotty one. There is little argument against the fact that if veterans suffering from psychoneurosis were not compensated they would be better off socially, the community would be benefited and there is no doubt that they would then be amenable to psychotherapeutic measures. In the present state of affairs it probably would be best to admit no more men to the compensation rolls as psychoneurotic, and to fix some unvarying sum to be paid for life as just compensation to those already there. If the "disability compensation" were made permanent there would no longer be that insuperable barrier to rational treatment. Should the same situation arise in some future year, it would be well to limit disability compensation for psychoneurosis to those shown to be disabled at the time of discharge from the service. Their number probably could be limited by competent entrance examination, but we would be the last to advocate that the soldier should be only the intellectually normal and mentally well integrated individual. We would lay the stress on the discharge examination, when the tension and rush are less and the opportunity to make a reasonable evaluation of the individual is in direct proportion to the examiner's ability. It would undoubtedly pay in the long run to have qualified opinion on the disabled individual and those claiming disability at that time. Belated applications for aid of course would be received under any system, but the aid given could be limited in all fairness to that noted in footnote 5. Surely this would constitute sufficient reward for doing one's duty.[16]

We would also recommend that veterans and especially the veterans' organizations be educated to the fact that the psychoneuroses are relievable and not "permanent and total" disabilities, as they seem to believe. It might also be well to invoke the fine and jail sentence for false statement against the physicians, veterans and their representatives who are deserving of them.

It appears that the tremendous financial outlay could be reduced and much suffering relieved by the use of reasonable methods. We have not gone into financial matters because of lack of space, but we recommend comparison of statistics from the British Ministry of Pensions and those of the United States Veterans' Administration. It will suffice for the medical reader to note that as Great Britain's expenditure for veterans steadily decreases, that of the United States rapidly increases. Lest the impression be derived that we are advocating a general reduction or discontinuance of disability compensation, let us settle this matter. We are of the opinion that those disabled in service cannot be compensated too much, regardless of the cause of the disability. We see no reason to cause directly or nurture disability by political methods after the cessation of service. Much of the medicine as practiced by the Veterans' Administration seems to us analogous to what may be expected under any regimented practice. Possibly we have here a "prevue" of state medicine, medicine as it is administered by politicians. It might be well for physicians to anticipate and originate any changes that are to be made in the future of the profession and thereby keep the administrative reins where they belong, in the hands of physicians instead of politicians. If the psychiatric service (this does not refer to custodial care) of the Veterans' Administration is any criterion, the former is to be preferred.

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14. We use these terms in the manner in which they are usually employed by organized medicine.

15. Eighteenth annual report of the minister of pensions from April 1, 1934, to March 31, 1935, London, His Majesty's Stationery Office, 1936.

16. See Foster Kennedy's letter to the New York Times in 1935. He has noted that in times of war it is the duty of the able-bodied men to defend their country. In times of war and peace it is the duty of able-bodied women to bear male children to defend the country. If one group is to receive special consideration, monetary or otherwise, for doing their duty the other should have it on the same basis. Dr. Kennedy's handling of the subject is most adept and we recommend its perusal.

The Galileo of Psychology.—But, at present, psychology is in the condition of physics before Galileo and the laws of motion, of chemistry before Lavoisier and the notion that mass is preserved in all reactions. The Galileo and the Lavoisier of psychology will be famous men indeed when they come, as come they one day surely will, or past successes are no index to the future. When they do come, however, the necessities of the case will make them "metaphysical."—Paget, Stephen: Confessio Medici, New York, Macmillan Company, 1931.

EFFECT OF CERTAIN GYNECOLOGIC LESIONS ON THE UPPER URINARY TRACT

A PYELOGRAPHIC STUDY

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In several previous communications, one of us [1] in collaboration with Heaney and Ockuly studied, by means of retrograde and intravenous pyelograms, the changes that occurred in the upper urinary tract during pregnancy and the puerperium. It was demonstrated in these studies that, during pregnancy and the puerperium, dilatation of the ureters and kidney pelves occurred in 100 per cent of our cases, that there was a return to normal in 59.3 per cent after two weeks and in 34.3 per cent after six weeks, and that the remaining 6.2 per cent were normal after twelve weeks. The striking fact about the dilatation of the ureter during pregnancy is that, with rare exceptions, it is above the brim of the pelvis. Another point emphasized by these studies was that lateral displacement, when found early in pregnancy, tends to increase as the pregnancy advances. Many contributions have since verified these observations.[2]

With these facts in mind, it occurred to us that it might be instructive and profitable to study a group of nonpregnant women who were suffering from various lesions of the gynecologic tract, in order to obtain answers to the following questions:

1. Do changes in the upper urinary tract occur in association with lesions of the pelvic organs in women?
2. How frequently do they occur?
3. Is there any definite relation between the type of disorder in the pelvis and the lesions in the upper urinary tract?
4. In what way, if any, do the changes resemble changes found during pregnancy?
5. Do these changes completely disappear after the pelvic disorder has been corrected by the appropriate surgical measures?

SELECTION OF CASES

In the selection of cases for this study we used patients who had no urinary symptoms and who were normal on urinary examination so that we might demonstrate how frequently changes are found in this so-called silent or asymptomatic group. In cases in which there were urinary symptoms, attention is naturally directed toward the urinary tract; hence changes, when present, are readily found. However, if a group of patients have no urinary symptoms, changes in the upper urinary tract, when present, may be readily overlooked.

In view of the fact that we are also interested in trying to demonstrate whether changes in the kidneys and ureters disappear after appropriate gynecologic operation, a statement should be made that cases presenting carcinoma were not included for the following reasons: 1. It is well known that, in cases of carcinoma of the cervix, obstruction to the ureter occurs with great regularity. This has again been recently emphasized by Graves, Kickham and Nathanson,[3] who found obstruction in more than 70 per cent of their cases. 2. In view of the fact that the lesion in cases of carcinoma cannot be so completely removed as in other types of disease and hence changes in the upper urinary tract do not completely disappear as in cases in which the pathologic condition can be removed, we felt that cases of carcinoma were not desirable for the purposes of our study.

Isolated case reports of changes in the kidneys and ureters, associated with various lesions in the pelvic viscera, have been reported but we have been unable to find papers in which large groups have been studied both before and after operation.

We carried out intravenous pyelography as a routine, using diodrast in 20 cc and 30 cc. ampules.[4] This was supplemented by retrograde pyelograms in a few instances in which the intravenous method was not satisfactory or in which we wished to check the results of the intravenous pyelograms.

Fig. 1 (case 1, fibroid above the brim of the pelvis).—Preoperative pyelogram, taken April 5, 1937, showing marked dilatation of the lumbar ureter. Note difference in size between the right and the left pelvis.

TYPES OF PELVIC DISORDER

In table 1 are presented the various types of gynecologic disorders that were found in this group of cases:

Fibroids Above the Brim of the Pelvis.—There were twenty-four cases of fibroids above the brim of the pelvis. Of these twenty-four cases, seventeen demonstrated a pathologic condition in the upper urinary tract, whereas seven were completely normal. Six of these twenty-four cases showed unilateral right-sided dilata-

From the Thomson Urological Fund, Presbyterian Hospital and Rush Medical College, and Cook County Hospital.
Read before the Section on Urology at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1937.

1. Kretschmer, H. L., and Heaney, N. S.: Dilatation of Ureter and Kidney Pelvis During Pregnancy, J. A. M. A. **85**: 406-409 (Aug. 8) 1925. Kretschmer, H. L.; Heaney, N. S., and Ockuly, E. A.: Dilatation of Kidney Pelvis and Ureter During Pregnancy and Puerperium, ibid. **101**: 2025-2028 (Dec. 23) 1933.

2. Seng, M. I.: J. Urol. **21**: 475 (April) 1929. Strumpf, I. J.: Am. J. Obst. & Gynec. **26**: 857, 1933. Lee, H. P., and Menger, W. F.: The Effect of Pregnancy on the Urinary Tract, J. A. M. A. **102**: 102 (Jan. 13) 1934.

3. Graves, R. C.; Kickham, C. J. E., and Nathanson, I. T.: J. Urol. **36**: 618-640 (Dec.) 1936.

4. The diodrast was furnished for this purpose by the Winthrop Chemical Company.

tion, two unilateral dilatation with lateral displacement of both ureters, three bilateral dilatation, three bilateral dilatation with unilateral lateral displacement, and one bilateral dilatation and bilateral lateral displacement, and in two there was displacement alone, unilateral in one, bilateral in the other, with no dilatation.

Fibroids Below the Brim of the Pelvis.—There were eleven cases of fibroids below the brim of the pelvis. In this group six presented pathologic changes in the pyelogram and five were normal. Three of these eleven cases showed unilateral dilatation, on the right side in two cases and on the left in the third; one unilateral dilatation with unilateral lateral displacement; one bilateral dilatation, and one bilateral dilatation with bilateral lateral displacement.

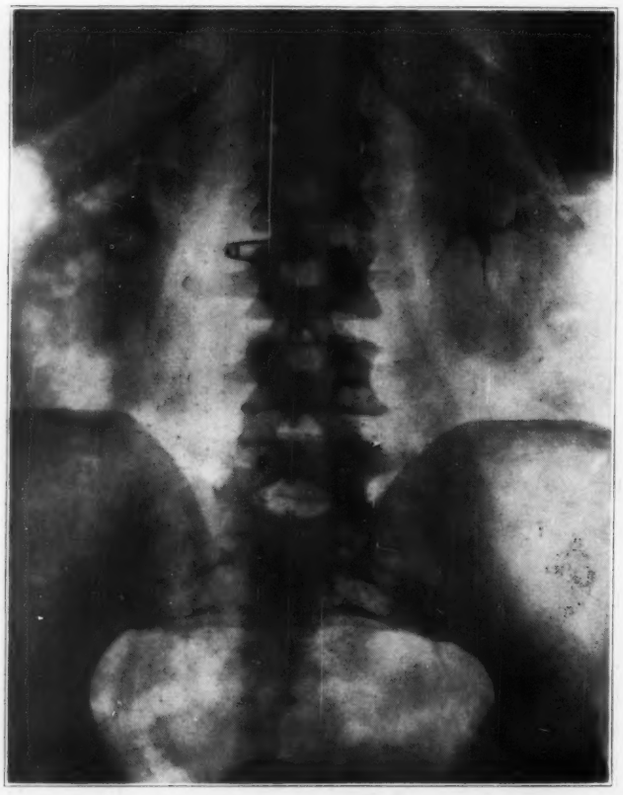

Fig. 2 (case 1).—Postoperative pyelogram, taken April 24, showing normal condition.

Ovarian Cysts.—In this series there were eleven cases. Nine showed changes in the upper urinary tract and only two appeared normal. In four cases there was unilateral dilatation (three on the right and one on the left side). In one case there was unilateral dilatation with unilateral lateral displacement; in three cases bilateral dilatation, and in one bilateral dilatation with unilateral lateral displacement.

TABLE 1.—*Types of Gynecologic Disorders*

Condition	Cases
Fibroids above the brim of the pelvis	24
Fibroids below the brim of the pelvis	11
Ovarian cysts	11
Prolapse	4
Tubo-ovarian abscess	1

Prolapse.—Of the four cases of prolapse, three appeared normal and only one showed bilateral dilatation.

Tubo-Ovarian Abscess.—In the one case of tubo-ovarian abscess the pyelograms were negative (table 2).

CHANGES IN THE PYELO-URETEROGRAM

Pyelogram.—The changes varied in degree from unilateral dilatation of the pelvis alone or dilatation of the pelvis and calices to very extensive dilatation and clubbing of the calices.

Ureterogram.—The changes in the ureters consisted of unilateral or bilateral dilatation and unilateral or bilateral displacement of the ureters, or a combination of the two.

It was interesting to note that, irrespective of the type of gynecologic lesion present, the dilatation, when found, was above the brim of the pelvis, with the exception of the one case in which the pelvic ureter was dilated down to the vesical end (case 2, figs. 1 and 2). In this case a diagnosis of true stricture of the ureter at the vesical end was made, and so it undoubtedly does not belong in this category of cases and will be discussed further along in the paper.

TABLE 2.—*Observations on Preoperative Pyelo-Ureterograms*

	Fibroids Above Brim of Pelvis	Fibroids Below Brim of Pelvis	Ovarian Cysts	Prolapses	Tubo-Ovarian Abscess	Total
Normal	7	5	2	3	1	18
Unilateral dilatation	6	3	4	0	0	13
Unilateral dilatation and unilateral displacement	0	1	0	0	0	1
Unilateral dilatation and bilateral displacement	2	0	1	0	0	3
Bilateral dilatation	3	1	3	1	0	8
Bilateral dilatation and unilateral displacement	3	0	1	0	0	4
Bilateral dilatation and bilateral displacement	1	1	0	0	0	1
Unilateral displacement	1	0	0	0	0	1
Bilateral displacement	1	0	0	0	0	1
Total	24	11	11	4	1	51
Normal	7	5	2	3	1	18
Pathologic	17	6	9	1	0	33

THE RESULTS

The largest percentage of changes in the upper urinary tract was found in the cases of ovarian cyst; out of a total number of eleven cases, changes in the pyelo-ureterograms were noted in nine cases, or 81.8 per cent. It would appear reasonable to assume that the high incidence of changes in the upper urinary tract in ovarian cysts is probably due to the fact that the cysts, being of soft consistency, readily mold themselves into the pelvis, which results in pressure on the ureters, as seems to be the case in pregnancy. If the two very high-lying intra-abdominal ovarian cysts are excluded which, because of their position, could not possibly have compressed the ureter, it is found that the ovarian cysts produce changes in the upper urinary tract in 100 per cent of the cases. Therefore it would be reasonable to assume that the consistency of the tumor and its ability to mold or compress has something to do with the high incidence of the changes in the upper urinary tract.

In the large fibroids above the brim of the pelvis, 70.9 per cent showed changes in the ureteropyelograms. When the lateral displacement of the ureter was bilateral, the uterine enlargement was mainly in the midline (case 3, fig. 3). In the case in which there was unilateral displacement, the growth of the tumor corresponded to the side of the displacement.

Of the large fibroids above the brim of the pelvis in which there was no dilatation of the upper urinary tract, it was found at operation that the fibroid growing out of the pelvis left a free interval between the tumor and the brim of the pelvis, so that there was no pressure on the brim of the pelvis. In the cases in

Fig. 3 (case 3, large fibroid above the brim of the pelvis).—Preoperative pyelogram, taken April 15, 1937, showing marked lateral displacement of the left ureter and displacement and angulation of the right ureter. The right pelvis shows slight dilatation.

which there was dilatation, it was found at operation that the fibroid so molded the pelvis that it probably compressed the ureter with resulting dilatation. In one case the dilatation was limited to some of the calices and rapidly disappeared after operation. Therefore it is reasonable to assume that pressure seemed to play a rôle in dilatation because the dilatation disappeared after the fibroid was removed.

In a review of fibroids below the brim of the pelvis, in table 2, changes in the upper urinary tract were produced in six out of eleven cases. Since, in the cases selected, the fibroids were in no instance smaller than a three months pregnancy, the same rôle in the production is possible.

STUDY OF THE POSTOPERATIVE URETEROPYELOGRAMS

In table 3 are presented the results of the study of the pyelograms made after surgical operation to determine whether the changes shown preoperatively are permanent or whether they disappear after the pathologic condition is corrected. Postoperative pyelograms were made with the results shown.

Of the patients with fibroids above the brim of the pelvis showing changes in the ureteropyelograms, thirteen showed a complete return to normal. Of the four instances in which there was no return to normal, slight dilatation persisted in two, a certain amount of lateral displacement persisted in one, and in the fourth case it was impossible to get the patient back to the hospital for a check-up. It is interesting to note at this point that in the one instance in which the marked lateral displacement did not return to normal it is possible that the interval between the operation and the intravenous pyelographic study was too short to obtain a complete return to normal. In this connection we wish to state that, in some of the cases that showed the presence of slight changes two weeks after the operation, subsequent study two or three months later showed

TABLE 3.—*Observations on Postoperative Pyelo-Ureterograms*

	Fibroids Above Brim of Pelvis	Fibroids Below Brim of Pelvis	Ovarian Cysts	Prolapses	Tubo-Ovarian Abscess	Total
Complete return to normal	13	3	7	1	..	24
Partial return to normal	2	1	1	..	..	4
Marked improvement	..	..	1	..	..	1
No change	1	1	..	..	..	2
Not in for check-up	1	1	..	..	..	2

a complete return to normal. In the few instances in which there was no return to normal, it is possible that inherent ureteral pathologic changes were present, although no symptoms and no changes in the urine were evident.

Fig. 4 (case 4, right ovarian cyst).—Preoperative film, taken Nov. 12, 1935, showing double kidney and double ureter on the right with marked dilatation. Note extreme dilatation of the right lumbar ureter.

Of the six cases showing pathologic changes below the brim of the pelvis and changes in the ureteropyelograms, in three there was an immediate return to normal after operation. One case showed no improvement—a true bona fide stricture of the ureter—and in one case there was marked looping of the ureter;

in the third it was impossible to obtain a postoperative pyelogram. In one instance preoperative pyelograms were normal, postoperative pyelograms showed dilatation and subsequent pyelograms showed a return to normal.

In the group of ovarian cysts, of the nine cases that showed changes in the ureteropyelograms before operation there was a complete return to normal in seven within twelve days after operation. Of the two patients who did not completely recover, one showed marked improvement, and we believe that with a further passing of time recovery will be complete. In the second case there was marked postoperative improvement but no complete return to normal. In this instance a congenital anomaly was present, namely, a double kidney

Fig. 5 (case 4).—Postoperative pyelogram, taken November 23, showing marked improvement but not complete return to normal.

with a double pelvis, and it is possible that the presence of the congenital anomaly accounts for failure to return to complete recovery.

SUMMARY AND CONCLUSIONS

1. It would appear that the incidence of secondary changes in the upper urinary tract in association with various types of gynecologic disorders is high. In this series of fifty-one cases, evidence of changes in the upper urinary tract was found in 64.7 per cent. In the group of fibroids, changes were found in 65.7 per cent; in ovarian cysts, 81.9 per cent; in prolapses, 25 per cent; in the one case of tubo-ovarian abscess, there was no change in the upper urinary tract.

2. Failure to appreciate the frequency with which these lesions occur is due to the fact that there has been no routine preoperative study in the group of cases that do not present urinary symptoms and urinary signs.

3. Following appropriate surgical procedure, a return to normal takes place in 72.5 per cent.

4. Subsequent pyelograms should be carried out in all cases in which recovery has not occurred at the time the patient is discharged from the hospital.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

DR. ROSEMARY SHOEMAKER, Rochester, Minn.: This paper has presented a group of cases which are too often overlooked because of lack of symptoms. In considering the mechanism of dilatation of the ureter in these cases, I would mention three etiologic factors: atony, mechanical obstruction, or obstruction resulting from intrinsic inflammatory changes in the ureteral coats or extrinsic inflammatory changes surrounding the ureter. In cases of extrinsic inflammatory change there may even be an easy plane of cleavage between the ureter and the lesion in the pelvis. Atonic dilatation is the mechanism by which the normal physiologic dilatation so frequently seen in pregnancy is produced. Recent experimental work by Traut, McLane and Kuder has shown that dilatation begins about the third month of pregnancy and continues to the seventh month; from then on it begins to recede and peristalsis gradually returns. I might also mention that this atonic dilatation is found in four-footed animals, namely, in mice and rats, in which case the posture of the animal obviates the question of mechanical pressure. Obstruction by mechanical pressure may be produced by fibromyomas and ovarian cysts, although in the experience of Dr. Cabot, with whom I discussed this subject, it is not of so frequent occurrence as Drs. Kretschmer and Kanter have pointed out. The most fixed point in the course of the ureter is at the crossing of the uterine artery. Fibromyomas arising in the lower third of the uterus and extending laterally generally pass either in front of or behind this point. If they pass behind this point the ureter may be dilated because of stretching over the tumor. Dilatation from inflammatory changes in the pelvis, externally but intimately surrounding the ureter, occurs as a result of interference with normal ureteral peristalsis. Surgical removal of such lesions in the pelvis as tubo-ovarian abscesses, inflammatory adhesions or fibromyomas allows the ureter to resume its normal peristalsis. Postoperative studies will show a return to a normal urinary tract in a high percentage of cases (about 95). All these patients should be investigated urologically in spite of, or I might say because of, their lack of symptoms, so that urinary conditions which may influence the postoperative recovery may be discovered and taken into account in the care of the patient.

DR. WILLIAM E. STEVENS, San Francisco: I found that about 824, or 9.9 per cent, of the previous 8,302 patients admitted to the women's clinic in the department of obstetrics and gynecology at Stanford University School of Medicine were referred to the female urology division because of urinary symptoms. These did not include patients with acute gonorrhea. Pathologic and physiologic changes in the generative organs, although present in a larger proportion, were possible or probable etiologic factors in about 27 per cent of the 824 cases. The lesions of the genital organs which were most often responsible for associated urinary tract disorder were cervicitis, displacement of the uterus, tumors of the uterus, ovaries and broad ligament, salpingitis and parametritis. The bladder and ureters are more frequently injured during gynecologic operations than the literature would indicate. One of San Francisco's best known gynecologists has recently been compelled to undergo a malpractice suit because of an alleged ureteral injury during a hysterectomy. The patient's urine was sterile. An abdominal tumor appeared on the sixteenth day. Examination by a competent urologist failed to disclose an injured ureter. More or less retention of urine usually follows major gynecologic surgery and residual urine may persist indefinitely. Pyelonephritis is a very common sequela. I do not believe that infection of the cervix is as frequently responsible for direct ascending lymphatic infection of the kidney as stated by several prominent observers. This may sound like heresy. Cervicitis ranked first among the lesions of the genital organs in our

cases but urethritis, trigonitis and cystitis were the most common urinary tract conditions with which it was associated. Displacement of the urethra is not infrequently associated with marked prolapse of the uterus and cystocele. Drs. Kretschmer and Kanter suggest the advisability of examination of the urinary tract in the presence of most genital lesions, although objective and subjective symptoms of pathologic conditions in the former organs may be absent. Conversely, examination of the genital tract in the presence of lesions of the urinary organs is often of great importance.

DR. HERMAN L. KRETSCHMER, Chicago: There were two points that we tried to emphasize; one of them was the fact that the changes found in this group of cases occurred much more frequently than is generally supposed, especially in the group of patients who have no urinary symptoms and in whom the urine analysis is normal. The second point was that, with the correction of the pelvic disorder, there was a rapid return to normal in a majority of cases at the time the patient left the hospital. In the small group of patients who still showed changes at the time of discharge from the hospital, subsequent check-up pyelograms showed a return to normal. The changes found in this group of cases are particularly identified with the changes found in the upper urinary tract in pregnancy. The patients who have urinary symptoms at the time they present themselves for gynecologic examination usually receive the benefit of a complete urologic study, so that when changes are present in the upper part of the urinary tract they are found. On the other hand, the group of patients who do not have urinary symptoms receive no urologic study and hence lesions when present are naturally overlooked.

ROENTGEN DIAGNOSIS OF CONTUSIONS OF THE KIDNEY

MAX RITVO, M.D.
AND
DAVID B. STEARNS, M.D.
BOSTON

Injuries to the kidney have shown a great increase in frequency during recent years and are now of relatively common occurrence. Severe injuries are of the utmost importance because they constitute a serious menace to life itself, and these traumas have consequently received the consideration due them. Mild injuries to the kidney are more important to the practitioner in view of their greater frequency—traumas which may not at the time appear as significant but which may lead to the invalidism of chronic or recurrent infection and in some instances to subsequent formation of stone.

The diagnosis in severe cases is not difficult, the syndrome of pain, hematuria and prostration after a blow to the loin giving a characteristic clinical picture. With mild traumas, however, it has been impossible to determine with certainty whether or not damage to the kidney has actually taken place. Many injuries diagnosed in the past as contusions of the back muscles and lower ribs undoubtedly involved the kidney, the symptoms not having been of sufficient severity to point at the onset to renal damage. This type of trauma, with only moderate injury to the kidney, doubtless accounts for pain and lameness of the back which incapacitate the patient for an inordinate length of time. Indeed, signs and symptoms in cases of mild renal injuries are often so scanty that the diagnosis may be mentioned only as a possibility and cannot be made definitely by diagnostic methods previously available. The presence of blood in the urine has been considered the most important sign of renal injury. Massive hematuria and prostration are absent in many instances; even microscopic evidence of bleeding may not be present with extrarenal oozing and edema. Also, many other causes of hematuria must be considered before one arrives at a definite diagnosis.

It has heretofore been generally recognized that the clinical manifestations of mild renal trauma are meager, variable and not definitely diagnostic. There may occur only transitory symptoms of variable duration, during which the patient complains of urgency and frequency; or, in some instances, there may be no urinary symptoms at the outset, with a deep-seated renal infection evidencing itself after the lapse of a few weeks. Roentgenologically, also, renal trauma has not been definitely demonstrable unless ruptures or tears of considerable degree existed, and then only if the damage communicated with the renal pelvis or calices. The present communication is concerned with a roentgenographic method of diagnosis in cases of mild or moderate injuries to the kidney and is applicable particularly to the type of cases which previously offered the greatest diagnostic difficulty, i. e., contusions of the kidney without severe tears or ruptures of the renal tissues. The observations on which this diagnosis rests were first made by one of us (D. B. S.) about one year ago. Since then we have observed a series of cases which form the basis of this report. This is the first note in the literature utilizing these signs in the diagnosis of renal contusions.

Fig. 1 (case 1).—Contusion of the right kidney. The left side is normal. On the right side, the renal pelvis is flattened along its inferior surface and narrowed. The calices are compressed and elongated; the inferior calices are partially and the middle calyx is completely obliterated. The ureteropelvic junction is displaced upward. The right ureter is pushed medially in its upper and midportions.

ETIOLOGY

Injuries to the kidney may result from a blow to the back, loin or abdomen and from indirect trauma such as a severe strain, a sudden bending of the body or a fall from a height in which one lands on the feet or the

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buttocks. With the wider use of automobiles and the greater number of industrial accidents, there will continue to be an increasing number of renal injuries. Some of the common causes of direct trauma may be enumerated as follows: falls from a tree, porch or other point of elevation; football, basketball, hockey and other games entailing hard bodily contact; penetrating wounds due to sharp tools or knives and falls onto a picket fence; automobile accidents; industrial traumas; kicks from animals. The injuries are more common in men, owing to their greater exposure to these hazards.

PATHOLOGY

Injuries of the kidney vary from slight traumas to very severe rupturing or tearing wounds and may be classified according to the extent and location of the pathologic changes as follows: (1) edema of the renal or perirenal tissues, (2) extracapsular hemorrhage involving the perirenal fat and fascia, (3) tears of the capsule and perirenal tissues, (4) subcapsular tears

Fig. 2 (case 1).—Three weeks after figure 1. The changes on the right side are similar but distinctly less marked than previously, indicating improvement. The pelvis and calices remain distorted; the upper part of the ureter is displaced medially, and its normal curves are still absent.

varying from single fissures to marked fragmentation, (5) laceration of the parenchyma, capsule and perirenal tissues and (6) injuries to the pedicle, with rupture of the blood vessels or ureter or both.

The bleeding which results may consist of hematuria or intrarenal, perirenal or intraperitoneal hemorrhage. Edema occurs simultaneously in and about the kidney. Owing to the edema and the accumulation of oozing blood, the calices and renal pelvis are compressed and the upper portion of the ureter is displaced mediad and sometimes upward. These variations in the kidney pelvis, calices and ureter give the roentgen appearances characteristic of contusion of the kidney which are to be described in detail hereafter. As the fluid is absorbed, the changes gradually diminish, and unless organization occurs within the perirenal tissues or kidney, the ureter and pelvis return to their normal position and contour after a few weeks. If fibrosis in the renal parenchyma takes place, permanent alterations in the contour of the calices result.

ROENTGEN APPEARANCES

The roentgen examination is of the utmost importance in establishing the diagnosis of renal injuries and should be carried out in all cases unless contraindicated by the severity of the injury, in which instance it should be done as soon as possible. The flat x-ray film may give helpful information occasionally and can often be made when the severity of the injury precludes more detailed studies. Some or all of the following signs may be demonstrable and assist the physician in arriving at a diagnosis: (1) haziness, or apparent enlargement of the renal shadow, (2) absence or blurring of the outline of the psoas muscle, (3) fixation or limitation of mobility of the kidney, (4) fracture of the lower ribs or transverse processes of the lumbar vertebrae and (5) scoliosis. It must be borne in mind that these signs may be associated with other conditions and are not pathognomonic of renal trauma.

Pyelographic studies are carried out by the retrograde or intravenous route depending on the condition of the patient. The retrograde method is usually the more satisfactory. Repeated examinations may be necessary and should be done as the patient's condition permits. With severe shock and hemorrhage, roentgen studies are contraindicated and should not be allowed to delay the prompt institution of proper remedial measures. A badly injured kidney may show very faint or no visualization on intravenous urography, the output on the unaffected side being normal. Extensive ruptures which communicate with the pelvis and calices are shown by extravasation of the opaque medium into the kidney parenchyma or subcapsular tissues.

In the past, the foregoing were the only recognized roentgen signs of renal trauma and required severe damage. However, we have observed definite x-ray appearances after mild or moderate injuries on the basis of which a diagnosis may be made. As has been mentioned, a renal injury may result in edema and hemorrhage about the kidney, and in these cases we have observed characteristic changes in the ureter, renal pelvis and calices which are demonstrable on the pyelogram. The ureter normally courses downward along the margin of the lower pole of the kidney, then curves laterally for a short distance and in its middle third swings medially again; in cases of contusions of the kidney it is pushed toward the vertebral column, forming an arc, and in some instances may even overlie the bodies of the vertebrae. The normal narrowings, dilatations and curves of the upper part of the ureter are obliterated, and this portion of the ureter becomes definitely pathologic in appearance. The ureteropelvic junction may be displaced upward. The kidney pelvis is narrowed and flattened along its inferior border, particularly if it is of the extrarenal type. The calices and infundibula become compressed and distorted, in some instances seeming almost spider-like. The ureter usually returns to its normal position in the lower lumbar or upper sacral region. Extravasation of the opaque medium into the kidney parenchyma or perirenal tissues may also be present if severe injury to the kidney has taken place, giving further indication of the extent of the trauma. Periodic reexaminations at intervals after the injury show the gradual return of the pelvis and ureter to normal position and contour, affording valuable information as to the absorption of the blood and edema and the healing of the renal injury. Therefore, the roentgen studies may have prognostic as well as diagnostic significance.

The demonstration of these changes in the renal pelvis, calices and ureter in conjunction with a history of trauma is positive evidence of contusion of the kidney. The absence of these appearances urographically, however, does not exclude renal injury, as hemorrhage and edema may be so situated as not to produce them. As heretofore stated, no description of these roentgen appearances is reported in the literature; however, on reviewing the prints of the roentgenograms published by various authors in discussions of renal injuries, we have found instances showing the changes described by us.

DIFFERENTIAL DIAGNOSIS

The following more important conditions must be considered in a differential diagnosis: (1) renal neoplasm, (2) tuberculosis of the kidney, (3) infections of the kidney and ureter and (4) perinephric abscess.

In cases of renal neoplasm, narrowing and irregularity of the renal pelvis and calices may occur and also varying degrees of distortion of the ureter. However, there is usually a history of loss of weight and strength with a mass in the kidney region, and reexaminations at intervals show progressive, destructive changes in the kidney. In cases of neoplasm, the hematuria continues to increase, while in cases of renal contusions the blood is usually small in amount and decreases with the passage of time.

Tuberculosis of the kidney may produce changes in the calices similar to those described by us, but the absence of flattening of the pelvis and displacement of the ureter together with the laboratory observations characteristic of tuberculosis exclude the possibility of contusion.

Infections of the kidney and ureter may cause blunting of the calices but do not present the changes in the renal pelvis and ureter which are seen after trauma.

In cases of perinephric abscess, arching of the ureter and flattening of the renal pelvis may occur, as with contusion of the kidney. However, there is an associated picture of sepsis which is absent in cases of renal contusion. The differential diagnosis may be difficult, however, without a history.

REPORT OF CASES

CASE 1.—J. J. W., a man, aged 26, was thrown from a horse, and the horse fell on him, bruising his right hip and loin. When brought to the hospital, he complained of pain in the right side, anorexia and weakness. Examination of the urine on admission showed albumin, rare red blood cells and a small amount of pus. Physical examination showed tenderness in the right lower quadrant and costovertebral angle.

Three weeks later he returned with nocturia, chills, malaise and continuous pain in the right loin; the temperature was 101 F. and the pulse rate 120. Intravenous urography showed almost complete obliteration of the inferior calix on the right, with mediad displacement of the upper portion of the right ureter, consistent with edema and intracapsular and extracapsular hemorrhage.

Two days later the urine showed a specific gravity from 1.006 to 1.020, a slight possible trace of albumin, a few pus cells and in one specimen hyaline casts and red cells. The uric acid was 5 mg. and the nonprotein nitrogen 48 mg. per hundred cubic centimeters at that time; in the succeeding weeks the nonprotein nitrogen gradually dropped to 34 mg.

This patient presented definite evidence of edema and perirenal hemorrhage and had a typical case of contusion of the kidney.

CASE 2.—W. G. F., a man aged 62, was injured in an automobile accident, being struck on the left side. Because of pain he was strapped, but without relief. He had urgency, urination every hour and nocturia (with urination three or four times). The urine was darker than usual. There was no previous history of similar complaints. The urine showed a few white cells and otherwise nothing unusual. There was tenderness over the entire left part of the back and the left side, with a feeling of resistance in these regions. No mass was felt.

Ten days after the injury, pyelography was done. The catheter (no. 5) met with obstruction at 8 cm. The middle and lower calices were narrowed; the upper ureter was displaced mesially.

The diagnosis was contusion of the left kidney with renal and perirenal edema.

CASE 3.—J. F., a man aged 48, was tossed about severely in an automobile accident, landing on the back. Two days later he noted dysuria, urination every fifteen minutes and nocturia (with urination eight or ten times). There was no history of previous genito-urinary disturbance.

Eight days later there was tenderness over the left costovertebral angle; no masses were felt. The urine was clear, the specific gravity 1.010 and the reaction acid, and there were rare pus and red cells.

Fig. 3 (case 2).—Contusion of the left kidney. The pelvis of the left kidney is small and flattened on its inferior surface; the calices are compressed and faintly visualized. The left ureter is pushed toward the midline in its upper and midportions.

Pyelo-ureterograms showed the right kidney normal. On the left the calices and pelvis were narrowed; the ureter showed displacement medially in its upper portion.

The diagnosis was contusion of the left kidney with renal and perirenal edema.

CASE 4.—R. B., a woman aged 34, was struck by an automobile, suffering injuries to the back, abdomen, extremities and face. Twenty-four hours later she noticed frequency, urgency and nocturia (with urination about ten times), with pain in the left side. Two days later examination of the urine showed many white cells, a few red cells, no casts and a trace of albumin. The temperature was 99.4 F. and the pulse rate 100. The patient remained in bed for several days and during that period continued to have urination every fifteen minutes, nocturia, dysuria, chills and pain in the back. There was also gross hematuria.

Two weeks after the trauma pyelography showed flattening and narrowing of the left renal pelvis, with medial and upward displacement of the superior third of the ureter.

The diagnosis was contusion of the left kidney; perirenal edema on the left.

CASE 5.—H. A., a man aged 24, was struck by a truck, suffering multiple injuries, and was brought to the hospital unconscious. During his stay of eleven days in the hospital he had urgency, frequency and nocturia.

Two weeks later these complaints were still present. There was tenderness in the left side of the back and in the left flank and groin. The urine showed a trace of albumin, no casts and a few red and white cells. Pyelography revealed compression of the left pelvis and calices, with mesial and upward displacement of the proximal portion of the left ureter.

The diagnosis was contusion of the left kidney.

CASE 6.—J. M., a man aged 25, was struck while at work by an automobile and thrown to the ground, being rendered unconscious. On admission to the hospital he complained of severe pain in the right upper quadrant and the right part of the back. There was no vomiting or hemoptysis. On examination there was tenderness in the right upper quadrant and over the right costovertebral angle. Spasticity and rebound tenderness were also present in the right upper quadrant.

Blood was oozing from the urethra, and the urine contained gross blood. The patient continued to pass bloody urine for several days. About one week after admission there was microscopic blood on urinalysis, and this persisted for about eight days.

X-ray examination revealed a small, narrowed renal pelvis, with distortion of the calices on the right side; the upper and midportions of the right ureter were displaced slightly toward the midline.

CASE 7.—W. T., a man aged 41, fell a distance of several feet, striking on his back. He complained of severe pain over the lower part of the abdomen and the back, especially in the region of the right kidney.

On examination there were tenderness and pain in the right lower quadrant and costovertebral angle, with moderate spasm. There were contusions and abrasions over the posterior aspect of the right side of the chest and midback.

Fig. 4 (case 4).—Contusion of the left kidney. There is fuzziness of the left inferior calices. The left renal pelvis is flattened, and the ureter is displaced medially in its upper portion.

About six hours after the injury, he passed bloody urine. The hematuria continued for four days. On the sixth day there were about twenty red blood cells per high power field; three days later microscopic examination revealed only a rare red corpuscle and a few white blood cells in the urine.

Pyelographic studies showed poor visualization of the calices on the right side; the renal pelvis was flattened; the upper part of the ureter was displaced medially and showed absence of its normal curves.

The diagnosis was contusion of the right kidney.

SUMMARY AND CONCLUSIONS

Injuries to the kidney have shown a great increase in frequency during recent years. The mild injuries have not in the past received the attention they merit.

In cases of severe trauma the clinical manifestations are characteristic, and diagnosis is usually not difficult. With mild or moderate injury, however, there has formerly been no satisfactory method of demonstrating whether or not actual damage to the kidney itself has taken place.

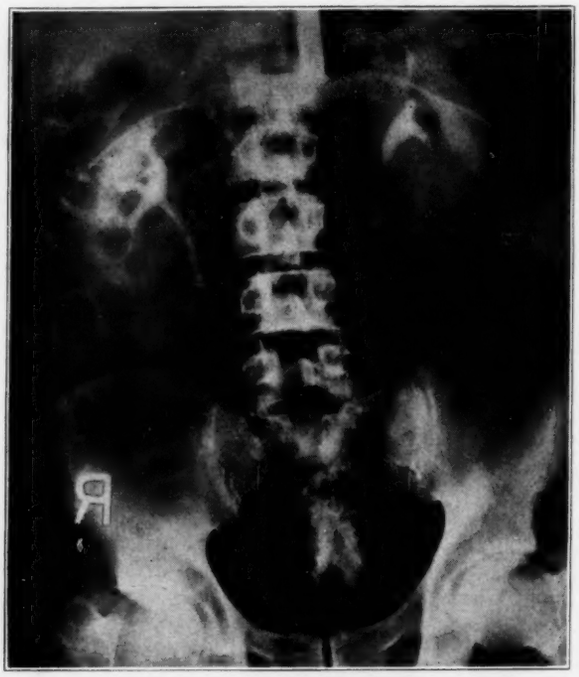

Fig. 5 (case 6).—Contusion of the right kidney. The right ureter curves medially and is displaced toward the midline. The right renal pelvis is compressed, and the calices are distorted, particularly the inferior calices.

There is a roentgen method of diagnosis in cases of mild renal injuries, the type of case which previously offered diagnostic difficulty. Trauma to the kidney may cause edema and hemorrhage into and about the kidney. The extravasated fluid displaces the upper part of the ureter medially, narrows the calices and causes flattening of the inferior surface of the renal pelvis. These changes are demonstrable by pyelographic examination and give a graphic method of diagnosis in cases of contusion of the kidney.

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ABSTRACT OF DISCUSSION

DR. EDWARD L. JENKINSON, Chicago: This paper offers a rather fertile field for further investigation. I should like to ask whether all the patients had blood in the urine, and in the cases that did not show blood, whether they were of any consequence and whether or not further investigation is necessary. I should also like to ask how many of these cases show areas of calcification in the hemorrhages after this so-called rupture or injury to the kidney. Many of these observations are undoubtedly important, but I wonder, in the absence of a history of injury, whether or not one could take one of these cases and from the displacement of the ureter or, rather, the redundant ureter, state definitely that the lesion was due to an injury. I believe there are a number of other conditions which undoubtedly would simulate a good many of these conditions.

DR. DAVID B. STEARNS, Boston: The authors have pointed out in detail the x-ray observations in contusion of the kidney. I wish to add a few words about the clinical picture about which

little is said in textbooks and the literature. In the cases I have had, the urinary symptoms have first been unnoticed by the physicians. Most cases of contusion of the kidney are regarded originally as simple back injuries. If the patient noticed frequency or urgency, he thought it might be due to nervousness. When this persisted, he decided that it might be of some importance and so brought it to the attention of his physician. Most patients have had pain in the loin. Frequency, urgency, nocturia and dysuria have been present in every case and started anywhere from six hours to forty-eight hours after the injury. In one fifth of the cases these symptoms were present for but three or four days. In the remainder they lasted from three to seven weeks. In 50 per cent a low grade fever was present, beginning soon after the urinary symptoms began, and in these cases the urinary symptoms seemed to last longer than in those cases in which there was no fever. Hematuria in various degrees was shown in almost every case. Two showed massive hematuria, so that the patient noticed a red or brown urine. Nearly all of them showed a number of pus cells in varying degrees; when pus cells were present in large numbers, fever was usually also present, and when there was fever and a larger number of pus cells the condition lasted longer. To rule out the possibility of urogenital infection in the older men, a prostatic examination was made. In one case it was the finding of fever that turned the physician's attention from the simple contusion of the back to the possibility of renal injury. In two thirds of the cases in which the symptoms lasted for more than three weeks, other laboratory examinations were instituted after examination to show the possibility of infection, tumors or other conditions. Finally, in one third of the cases urinary symptoms recurred showing evidence of lowered renal resistance, one which occurred in five months and, in another case, twice during the following four years, which was the case of the first roentgenogram that was shown. Another point is the medicolegal aspect of this condition. The prognosis in contusion of the back muscles is quite different from that of the diagnosis of proved renal contusion in which there is a possibility of long standing renal infection and the possibility of precipitation of calculi may be present. In this series of cases, no calculus has as yet developed. Dr. Squires in a recent paper reported a case of a motorcycle policeman who had fallen on his back but did not rupture the kidney. Bilateral calculi had been formed in his kidneys about three months after the injury. Calculus formation following kidney contusions therefore seems possible.

DR. ROSS GOLDEN, New York: I should like to ask whether there is any contraindication to retrograde pyelography in these cases; also what is the relative value of retrograde and intravenous methods of pyelography?

DR. W. T. CLARK, Janesville, Wis.: I should like to know how early the procedure was done in these cases. A few years ago I saw several ruptured kidneys which, in the first day or two, showed a little blood in the urine. Two of those which came to autopsy were badly ruptured kidneys. The patients died quickly. To be of any particular use to those patients with regard to roentgen diagnosis, one must make that diagnosis relatively early.

DR. MAX RITVO, Boston: With reference to the subsequent development of calcification, this has not occurred in any of our cases. However, it is a possibility, as we are familiar with post-traumatic calcification in hematomas and about the knee in Pellegrini's disease. Dr. Ross Golden informs me that he has observed it in one case. Dr. Jenkinson inquires whether the condition may be diagnosed without a previous history of injury. The x-ray appearances are diagnostic, although there are other conditions which may produce a somewhat similar picture. The situation is analogous to that in the diagnosis of silicosis. However, the roentgenologist is a medical consultant and should in every instance have a full knowledge of all the clinical facts that may assist him in arriving at a diagnosis. Although it is frequently possible to make a correct interpretation from the films alone, this is not desirable; in order to perform his true function as a consultant, the roentgenologist should always know the history, the results of the physical examination and other pertinent data. Dr. Golden has asked whether there are any contraindications to retrograde pyelography and the relative value of intravenous and retrograde studies. With reference to the first portion of the question, the clinical aspects of the case are the deciding factors. If the injury was severe, as evidenced by shock and hemorrhage, retrograde studies are contraindicated; with mild or moderate injuries, they may be carried out with safety. The intravenous route usually gives satisfactory results; however, we feel that retrograde studies are the method of choice in most instances. Dr. Clark asks whether the examination may be carried out soon after the injury, particularly in the case of a ruptured kidney. The present discussion has been limited to the milder kidney injuries. We do not advise the early use of this method of diagnosis in the very severe renal ruptures. After mild or moderate traumas, however, we have carried out roentgen studies within a few hours of the time of injury; there have been no apparent ill effects in these cases and it is our belief that the examination is entirely safe if ordinary care is used in the selection of the cases.

MALUNITED COLLES' FRACTURES

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Malunion occurs more frequently following Colles' fractures than any other fracture. There is considerable disability, pain and deformity associated with this lesion, and the disfigurement is particularly unsightly in

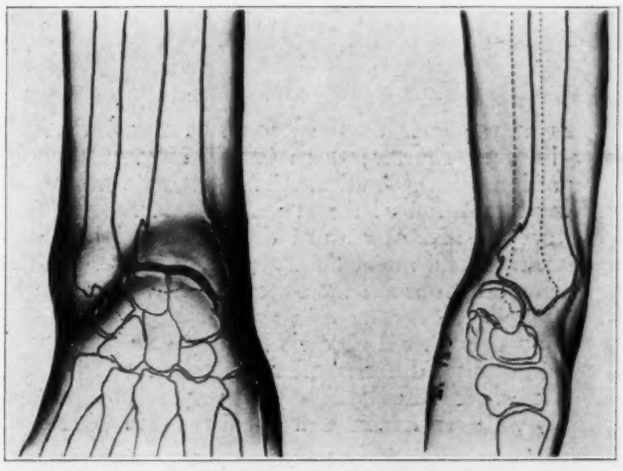

Fig. 1.—Typical malunited Colles' fracture, with posterior angulation of distal fragment and radial shortening.

women. My object in this discussion is to present a surgical procedure which accomplishes restoration of anatomic alinement and function and a wrist of which the appearance is practically normal.

Malunion of this fracture is most common for several reasons: First, failure to reduce the fracture completely. Second, recurrence of deformity after apparent reduction and confirmation by the roentgenogram. Third, excessive comminution with radial shortening. This occurs most frequently in elderly persons and rarely under the age of 45, owing to difference in structure of the bone. With the most efficient treatment, reduction may be accomplished but not always maintained, so that a certain percentage of malunion of moderate degree can be considered legitimate and excusable. This is particularly true if the articular surface of the radius is markedly comminuted. Fourth, complete rupture of the radio-ulnar ligaments with undue mobility of the lower extremity of the ulna.

Read before the Section on Orthopedic Surgery at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 11, 1937.

Fifth, the possibility of a recurrence of the deformity if active motion and physical therapy are instituted at an early date, before consolidation is complete.

Malunion of sufficient degree to impair function in the wrist materially creates an unsightly cosmetic appearance which is well known. On examination the hand is at a grotesque angle to the forearm, owing to the radial shortening with the wrist in abduction; there is a dorsal prominence of the wrist if the backward angulation has not been corrected, with the head of the ulna protuberant laterally and anteriorly. The wrist is usually wider than the normal, particularly if the fragments were impacted or comminuted. Because of disuse, there is usually considerable trophic change of the fingers with stiffness of the interphalangeal joints. Motion of the wrist is particularly limited in flexion and adduction, with varying amounts of pain on motion. Roentgenographic examination reveals the styloid process of the radius at the level of the styloid of the ulna, or it may be even shorter; there is widening of the distal portion of the radius. The lateral view shows varying angulation of the articular surface, from normal forward and downward tilt to marked backward displacement and angulation. In those above 40 there is often osteoporosis of the bones of the wrist and hand to a pathologic degree.

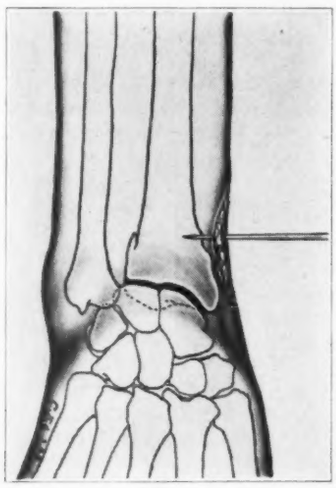

Fig. 2.—Osteotomy of the radius three-fourths inch proximal to the articular surface.

Owing to the marked variation as to the amount of bony deformity, differentiation must be made between the borderline cases which will respond to physical therapy with serviceable wrists and those in which surgery is expedient.

Two entirely different surgical principles are employed in malunited fractures: one restoring function by a compensatory procedure, the other by reconstructing normal anatomic relationships. By resection of a section of bone from the distal portion of the ulna some function may be restored, the logic of which is that the chief disability is due to limitation of rotation of the distal radio-ulnar articulation. This in no way restores the normal mechanics or contour of the wrist but is entirely compensatory.

A simple osteotomy of the radius may restore function of material degree and reduce the backward angulation but does not correct the abnormal contour of the radius and ulna.

The most efficient procedure is a plastic operation of the bone whereby the normal angle of the articular surface is restored, the radial shortening corrected and the prominence of the distal end of the ulna removed, thus reproducing normal external and bony contour. The technic of the operation is as follows:

A lateral incision is made over the lower extremity of the radius about 2 inches in length through the skin and superficial fascia between the brachioradialis and the abductor pollicis longus and the extensor pollicis brevis. By careful dissection the line of fracture is exposed. A transverse osteotomy is made through the radius about three-fourths inch to an inch above the distal articular surface, after which correction of the posterior angulation of the lower fragment can be made by acute flexion of the wrist joint so that the lower fragment is angulated slightly downward and forward. In this position a hemostat can be inserted between the fragments and opened with moderate force, thus separating the fracture surfaces and demonstrating the amount of increase that can be obtained in the length of this bone. A skin clip is now placed so as to close this wound temporarily.

An incision is then made for about 2 inches over the medial aspect of the lower extremity of the ulna through the periosteum, which is stripped off of the inner half from above downward, exposing the articular surface and the styloid process. With a small osteotome the inner half or third of the head and inner portion of the shaft is severed from below upward, thus securing a free graft of bone about 1 inch in length and about one-half inch in thickness at one extremity and tapered at the other. This graft is placed in a covered sterile pan or sterile towel.

The free graft of bone is now trimmed with bone forceps to make a pyramidal wedge with a base on the dorsal as well as the lateral aspect, which is inserted into the space between the fragments. The dorsal wedge maintains the normal angle: the lateral wedge prevents recurrence of radial shortening. Care must be taken that there is slight overreduction of the lower fragment; that is, slight anterior angulation. Both wounds are then closed as a routine and dressed with small gauze pads. On inspection the external contour should be approximately normal except that the head of the ulna may not be prominent. The lateral dimension or width of the wrist joint should be normal, and on palpation the lower extremity of the styloid process of the radius should be distal to that of the lower extremity of the ulna.

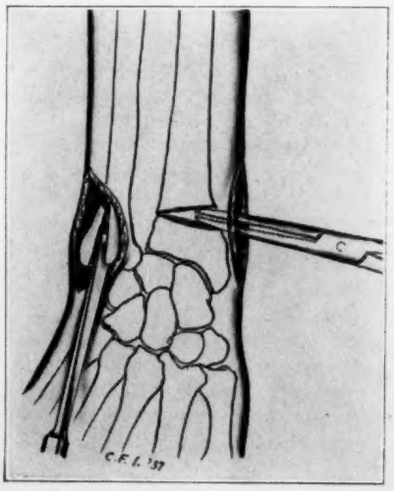

Fig. 3.—Hemostat inserted between fragments to correct radial shortening; pyramidal wedge of bone removed from ulna.

A sterile flannel bandage is placed from the metacarpophalangeal joints below to just above the elbow, and the sugar tong cast or molded plaster anterior and posterior splints are applied. While this is consolidating, the forearm is held in midposition, the wrist in slight flexion, with pressure over the dorsum of the wrist so as to make the posterior capsule of the wrist joint tense, thus maintaining the lower fragment of the radius.

A roentgenogram is then made which should demonstrate practically normal anatomic alinement; the lateral view will show that the normal plane of the lower articular surface of the radius has been restored, while the anteroposterior view will show that the styloid process of the radius is about one-half inch lower than the lower extremity of the ulna, the ulna styloid process

having been excised. Roentgenograms should be made through the plaster splint at the end of one week and two weeks, in a routine manner, to determine position and thus adjust any slight recurrence of deformity. After one month the plaster splint is removed, roentgenograms are made, and a small anterior metal splint is applied with straps and buckles to allow frequent removal for active and passive exercises and physical therapy.

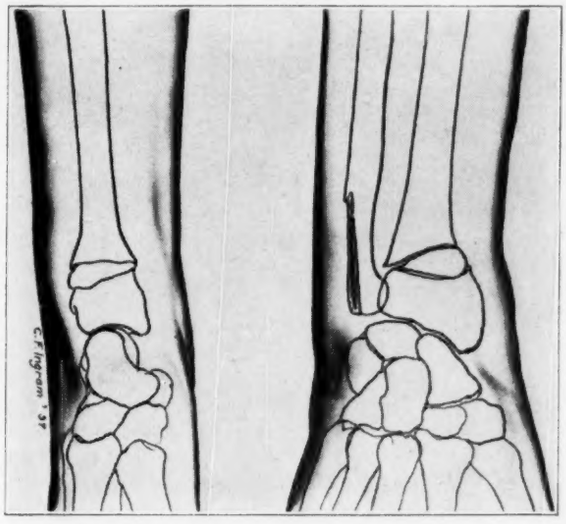

Fig. 4.—Posterior angulation corrected by dorsal wedge of graft; radial length maintained by lateral wedge of graft; prominence of ulna removed.

The question naturally arises as to whether there is a probability of inducing delayed union or nonunion with recurrence of deformity or tenosynovitis from prolonged fixation. In answer to such a possibility, union in all cases has been accomplished in about the same time as in fresh fractures, though protection is continued for a period of eight weeks. As in other locations in the extremities of long bones in which an elongation has been accomplished by insertion of an autogenous graft, such as the malunited fractures of the condyles of the tibia, union has not been delayed in a single case, nor has the graft undergone atrophy or sequestration but in all has healed and functioned.

END RESULTS

Surgical procedures have been carried out in forty-one cases of malunited Colles' fractures; twenty-two were simple osteotomies of the radius; nineteen were plastic procedures on the bone as described.

A reasonably high percentage of function was restored by osteotomy alone, but the radial shortening and prominence of the ulna were not corrected. Thus, except for correction of the angulation of the distal fragment, little was accomplished toward normal anatomy.

The results from the plastic procedure on the bone have been uniformly excellent, meaning that contour is approximately normal and function restored to a material degree.

Of the nineteen cases, eleven end results are excellent and seven are unknown. One case has not been entirely satisfactory, as there was excessive mobility of the lower extremity of the ulna due to ruptured interarticular fibrocartilage, and it is too early to determine the amount of function that will be secured. Of the seven cases in which the result is not known, two were progressing satisfactorily when last seen, so much so that normal function could be predicted. The average age of the patients was 45 years, with the oldest 66 and the youngest 29. The length of time from injury to operation varied from one month to one year, with an average of four and a half months.

The advantages of this procedure are that practically normal function is secured in a high percentage and an unsightly deformity is corrected, which materially adds to the comfort of the patient.

869 Madison Avenue.

ABSTRACT OF DISCUSSION

DR. FRANK D. DICKSON, Kansas City, Mo.: Dr. Campbell has brought out that malunion of the Colles fracture is a disabling condition, particularly in industrial cases. The disability is the result of two things: first, the incorrect alinement of the articular surface of the lower end of the radius, and, second, shortening of the radius, which brings about a disturbed relationship between the lower end of the radius and the ulna, resulting in limitation of flexion and extension, limitation of abduction and adduction, and limitation of pronation and supination. Another thing which I think he did not mention which is found frequently is the disturbing pain and discomfort about the lower end of the ulna resulting from its displacement and malalinement with the radius. All surgeons have been disappointed in the results of simple osteotomy in these cases; at least I have, although the results secured by shortening the ulna to alter the malalinement between it and the radius have been fairly satisfactory. Such an operation, however, does not correct the disturbance of the lower articular surface of the radius. Dr. Campbell's operation seems very effectively to correct the malalinement between the radius and the ulna and also to restore the normal contour of the lower articular surface of the radius. I will certainly, in the future, give this procedure a very thorough tryout and shall hope to get the excellent results which Dr. Campbell has shown.

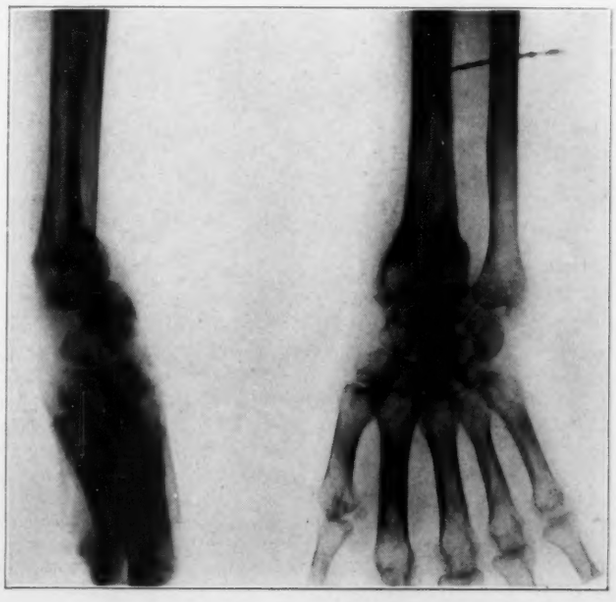

Fig. 5.—Malunited Colles' fracture.

DR. GEORGE E. BENNETT, Baltimore: I presume that a great many men in the audience have been utilizing bone grafts to fill in the space after an osteotomy has been done for the correction of a Colles fracture. The technic which Dr. Campbell has described is certainly the one I am going to try the next time it is necessary for me to operate for the correction of this deformity. I have been taking grafts from the head of the tibia and placing them in the osteotomized area for many years, because if one does a simple osteotomy and brings the hand down in its corrected position a much longer healing period is required. In most cases I do an oblique osteotomy

of the ulna to correct the deformity. There is one point I should like to stress, which Dr. Campbell did not mention: often patients with an old, malunited Colles fracture show a great deal of disturbance of the muscular and soft tissue of the hand, a fibrosis, and an interference of circulation. In my early experience I operated in the presence of this condition at the end of, say, eight weeks, doing an osteotomy and a correction, only to find that recovery was very slow. So for the past fifteen years I have made a practice of instituting physical therapy and getting the hand into the best condition possible before operation, thereby lessening the period of convalescence and securing better function of the hand. I think that if one attempts to do this operation before the soft tissues have reached their maximum recovery the results will not be as good as if sufficient physical therapy had been carried out before operation.

DR. DONALD C. DURMAN, Saginaw, Mich.: For about ten years I have done an operation which is more simple but similar to the one described by Dr. Campbell. The operation and a small series of cases was reported in the *Journal of Bone and Joint Surgery* a year ago. I feel that it is worth

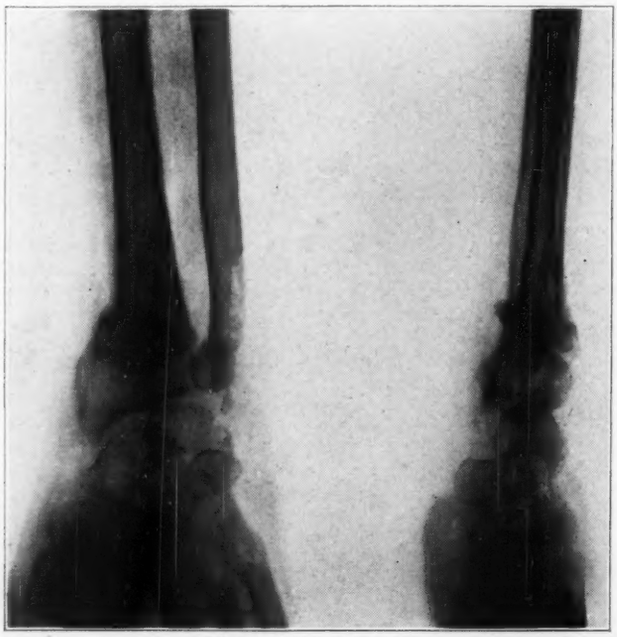

Fig. 6.—Same case as in figure 5, three months after operation. Radial shortening and posterior angulation have been corrected and prominence of the ulna has been removed; note function of pyramidal wedge.

mentioning here. An osteotomy through the fracture line is done on the dorsal surface, as described by Dr. Campbell. The ventral portion of the cortex is then fractured subperiosteally. Following this a graft of suitable length and breadth is cut longitudinally from the distal end of the upper fragment of the radius and is fitted transversely in the line of osteotomy. The graft holds the distal fragment in normal position. By making one end of the graft slightly broader than the other it is possible to correct the radial deviation of the hand. Resection of the distal end of the ulna has been found unnecessary to secure a good cosmetic result. After the graft is wedged into the line of osteotomy it is practically impossible to displace the lower fragment. In all my cases bony union has been well advanced at the end of three weeks. Two weeks after operation, plaster dressings are removed and replaced by an elastic bandage. All cases have had a very satisfactory functional and cosmetic result.

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: Some one has asked how I anchor the triangular ligament. That is usually done by suturing it to the adjacent periosteum or to the bone by means of a hole drilled through the ulna. As for the graft, it is taken subperiosteally. I thoroughly agree with Dr. Bennett that these patients should not be operated on until after all acute symptoms have subsided and the structure is as near normal as possible. If there is any extensive thickening or unusual edema of the hand, which often occurs in elderly persons, I institute physical therapy as a preliminary measure. I suppose grafts have been taken from the tibia or the radius higher up, but it does not decrease the broadening of the wrist. The cosmetic results are of considerable importance, particularly in women. I can see no reason why the extra incision should not be made and sufficient bone removed. The main point in this operation, of course, is the elongation of the radius.

THE CARE OF THE FEET IN CHRONIC ARTHRITIS

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BOSTON

The joints which are affected most frequently by chronic arthritis are those of the feet and the hands. Sometimes the disease subsides quickly, but in most instances some permanent damage remains in these joints. More attention is usually given to rehabilitation of the hands, and adaptation in use is more readily obtained. Persistent disability of the feet, however, is frequently observed. Normal activity and work are prevented by deformity, stiffness and pain. If the patient remains ambulatory, effective treatment is difficult and often impossible. Deformity and pain in the feet may increase after the arthritis is apparently quiescent as determined by both clinical and laboratory tests. Much, if not all, of the disability can be prevented by adequate early treatment. Deformities can often be corrected when the disease is quiescent, and a fairly close approach to normal walking may again be obtained. It is the purpose of this paper to outline the general measures which were found most helpful in restoring function in the feet of over 1,200 patients suffering from chronic arthritis who were treated for this special disability at the Robert Breck Brigham Hospital.

The deformities which develop in the feet do not differ greatly in the two great types of chronic arthritis, atrophic and hypertrophic arthritis. While there is usually greater pain and more rapid progression of deformity in atrophic arthritis, both types lead primarily to limitation of motion in the tarsal and phalangeal joints. The muscular weakness which accompanies this restriction of motion is, with weight bearing, the chief factor in the progression of deformity.

Chronic arthritis in its early stages usually presents the same symptoms which are caused by chronic strain. Differentiation can usually be made from the history of progressive impairment of the general health, involvement of other joints and stiffness of the feet after rest, which lessens with continued use. The swelling is variable in degree but more widespread and not limited to a special location (fig. 1). Limitation of motion in the midtarsal joints is one of the most common early symptoms.[1] The blood sedimentation index is elevated in most instances. Roentgenograms, which usually show nothing abnormal at the onset of the disease except swelling of the soft tissues, show progressive bony atrophy, clouding of the joint spaces and increasing narrowing and irregularity of the articular surfaces.

From the Robert Breck Brigham Hospital.

Read before the Section on Orthopedic Surgery at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 10, 1937.

1. Swaim, L. T., and Kuhns, J. G.: Prevention of Deformity in Chronic Arthritis: the Lower Extremity, J. A. M. A. **94**: 1743 (May 31) 1930.

These symptoms and these changes in the feet will be observed in about three fourths of all patients with early chronic arthritis. When they appear adequate treatment should be given, because subsequent deformity and lasting disability can be avoided. The only certain method of preventing future disability is to avoid weight bearing until the pain and swelling in the feet

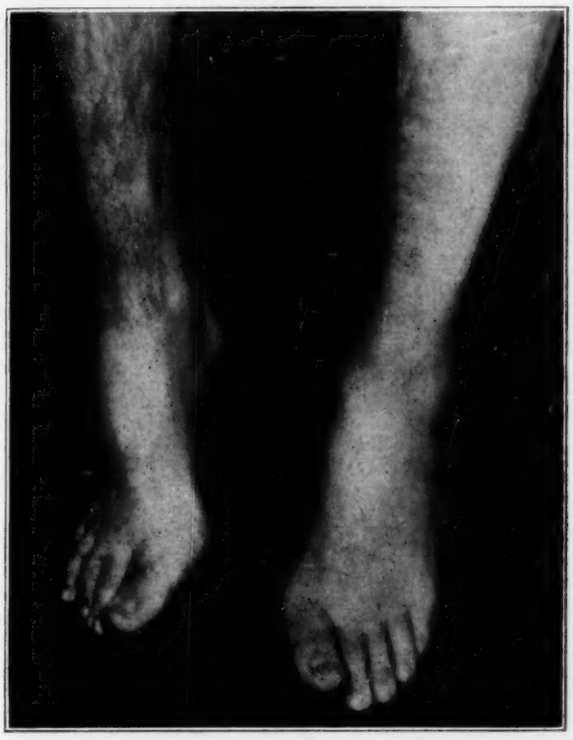

Fig. 1.—Early arthritis of the foot, with generalized swelling about the ankle and spreading of the forefoot.

subside. They usually do so rapidly, in a few days or several weeks. Heat in any form, but particularly in the form of hot foot baths, is helpful. If pain persists after the patient has been put to bed, some method of immobilizing the foot should be employed. The simplest means is a well fitting plaster cast holding the foot in the normal weight bearing position. The posterior halves of such casts can be used only at night, when the patient has less pain. As pain and swelling subside, exercises are begun to strengthen the muscles which support the foot.

Before the patient again becomes ambulatory, proper shoes and adequate support should be given to prevent strain. If this is not done a recurrence of the symptoms will usually be seen as soon as the patient begins to walk, and progression in deformity and extension of the arthritis will be observed. In general, when arthritis is present, shoes should be sufficiently wide to avoid pinching the foot when weight is borne; they should have low, broad heels and firm, thick soles. Added support should be given if it is needed to maintain the normal weight bearing position of the foot. The foot should not roll inward, and a line continued downward from the mid patella should cross the foot at about the crotch between the first and second toes (fig. 2). Added support for the foot is sometimes given by raising the front inner corner of the heel one-fourth inch; often a foot plate is necessary temporarily. Strapping of the foot where the skin will tolerate this procedure is a useful measure until muscular strength returns. Exercises should be continued until the foot is strong.[2] Strain on the feet cannot be permanently relieved unless the whole body is carried properly, for faulty weight thrust and muscular balance will be reflected in foot strain. Attention must be given to the posture of the whole body so that normal function of the muscles supporting the feet will be possible.

If inadequate treatment or no treatment is given and the arthritis remains, increasing deformity usually occurs. The deformity most commonly seen is one with the foot stiff in valgus (fig. 3). In this position the irritated tarsal joints can be held rigidly by the muscles and motion at the ankle joint can be prevented. In walking, however, it causes marked strain on the supporting ligaments of the foot, and the strain is soon transmitted to the knee and the hip. When rigid valgus has developed, changes take place in the anterior part of the foot. Because weight bearing is faulty and because normal use of the intrinsic musculature of the foot is prevented, the muscles atrophy and a widening of the anterior part of the foot is seen, a flattening of the so-called anterior arch. This is followed by undue pressure on the heads of the metatarsal bones, and the symptoms are usually pain and tenderness. Pain may be referred along the digital nerves to the toes. If the shoes do not fit properly, the deformity progresses more rapidly.

When this degree of deformity has come, disability is severe, and the patient usually walks with great difficulty.[3] The severe strains, which come chiefly on the foot and the knee, aggravate the arthritis, and no subsidence of the inflammatory processes in the joints can be expected unless the deformity is corrected. Avoidance of weight bearing will bring temporary help, with a recurrence of symptoms when the foot is again used. Forceful correction of the rigid valgus may be necessary. This can be done most easily by the repeated application of adhesive plaster, a little greater correction of the deformity being secured with each application. In cases of more resistant deformities, a succession of plaster casts will sometimes bring correction. In the case of a very resistant foot, if the arthritis is quiescent, manipulation with the patient under anesthesia is indicated, followed by fixation of the foot in varus until the swelling and pain have subsided. When weight bearing is again undertaken, adequate support of the foot is needed until normal strength has returned.

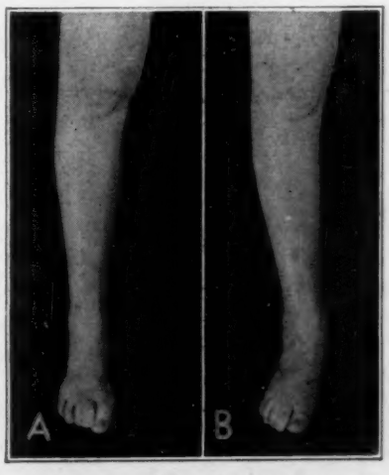

Fig. 2.—*A*, the normal weight bearing line, which crosses the second toe; *B*, faulty weight bearing line, which comes to the inner side of the foot.

When weakening of the intrinsic muscles of the feet and spreading of the forepart of the foot persist, two other deformities develop, hallux valgus and contracted

2. Brown, L. T.: Consideration of the Action of the Foot from an Anatomical and Mechanical Standpoint, Am. J. Orthop. Surg. **10**: 18, 1912.

3. Morton, D. J.: The Mechanism of the Normal Foot and of Flat Foot, J. Bone & Joint Surg. **6**: 56 (April) 1924.

toe deformity. If there is much arthritic involvement of the metatarsal and phalangeal joints, these deformities develop much more rapidly. The hallux valgus follows the spread of the anterior part of the foot, owing to the faulty weight thrust in valgus, the pressure of the shoe and the pull of the adductors of the great toe, which have a greater mechanical advantage when the forefoot is spread. The deformity of the toes comes from the depression of the heads of the metatarsal bones and from a more direct pull of the extensor tendons. This deformity of the proximal phalanx in dorsal extension is soon followed by subluxation of the proximal phalanx, usually lateral to the metatarsal head. With the osseous changes which accompany arthritis, marked deformation of the metartarsal heads and of the phalanges is seen (fig. 4).

Fig. 3.—Rigid valgus with deformity of the great toe and dorsal contracture of the other toes.

Operative correction is not always necessary in the early stages of these deformities. Temporary cessation of weight bearing and exercises to develop the flexors of the toes and the intrinsic muscles of the forefoot will help greatly. The chief concern is adequate support to the anterior part of the foot. This may be obtained by a foot plate which raises the forefoot medially to the second, third, and fourth metatarsal heads. Repeated plaster strapping and a leather cuff fitted about the foot just proximal to the first and fifth metatarsal heads are also useful measures.

When rigid deformity is present and the arthritis is inactive, a manipulation of the toes into flexion with the patient under anesthesia may be required. After the manipulation, the toes can be held in plantar flexion by adhesive strapping for several days. Repeated manipulations will at times result in normal function of the toes. When subluxation of the proximal phalanx persists and there is marked deformity of the joints, the most rapid and usually the most satisfactory result is obtained by the operative removal of the distal half of the proximal phalanx. If the hallux valgus is severe, operative correction by removing the proximal portion of the first phalanx of the great toe usually gives the best functional result. Extensive reshaping of deformed bones has not proved a desirable procedure. After operation marked changes take place in the atrophied bones as the result of function. The simplest and least traumatic surgical procedure gives the best end result. Operative procedures are undertaken only when the arthritis is quiescent.

Ankylosis of the phalanges is not commonly seen. When it has occurred, removal of the entire proximal phalanx has given painless function without the subsequent development of calluses under the toes. This operation has also been performed in cases of complete ankylosis of the first toe, and the toe has become painless and useful. In cases of extreme deformity, amputation of all the toes and occasionally removal of the heads of the metatarsal bones have been carried out. In no case have these procedures proved to be wise. A long foot plate has been required subsequently for the relief of pain. Calluses have developed under the forepart of the foot, since the rigid foot cannot adapt itself to the changed pressure of weight bearing. The functional disability has eventually become greater than before operation.

Hallux rigidus, with its limitation of dorsiflexion in the great toe, a deformity which develops not uncommonly in cases of hypertrophic arthritis, often produces great pain in walking. It can frequently be relieved by a long plate or by greater rigidity in the sole of the shoe. When these simple measures are not effective, removal of the bony overgrowth on the dorsal surface of the metatarsal head will relieve the symptoms. Sometimes removal of the proximal third of the first phalanx of the great toe is necessary to permit painless motion in the first metatarsophalangeal joint.

One of the most disabling deformities is ankylosis of the tarsal-metarsal joints. With this deformity there is loss of all flexibility in the forefoot. Usually the ankylosis is associated with a flattened anterior arch and flexion deformity of the toes. The metatarsal bones consequently become fixed in a position of increased plantar flexion. Calluses form rapidly, and pain is referred to the heads of the metatarsal bones. Occasionally the ankylosis can be broken by manipulation, but usually an operation is required. The simplest procedure is removal of the proximal half inch of the metatarsal bone (fig. 5). This produces pseudarthrosis and permits movement of the metatarsal bone. When

Fig. 4.—Roentgenographic appearance of chronic arthritis of the foot of four years' duration. There are ankylosis of the tarsal joints and of the tarsalmetatarsal joints and extreme deformities of the toes.

contracture has been present a long time, this procedure may not be sufficient to permit motion of the distal end of the metatarsal bone. An osteotomy just proximal to the head of the metatarsal bone,[4] with the distal fragment held in a dorsiflexed position until healing has occurred, will permit fairly good function; but with severe contractures this procedure is usually not

4. Meisenbach, R. O.: Am. J. Orthop. Surg. **14**: 206 (April) 1916.

as satisfactory as the removal of the head of the metatarsal bone. The head of the first or the fifth metatarsal bone should not be removed, since this disturbs seriously the balance and the weight bearing of the foot.

Ankylosis in the tarsal joints rarely yields to manipulation. If a fair weight bearing position of the foot cannot be secured with proper shoes and foot plates, an operative correction of the deformity is indicated. The most useful procedure is a wedge osteotomy through the subastragalar joint or through the dorsum of the foot, with the foot held subsequently in a good weight bearing position while the site of the osteotomy heals.

Spurs are frequently found in feet troubled by arthritis. They occur most commonly on the anterior plantar surface of the os calcis. They are also seen on the dorsal surface of the astragalus and tarsal scaphoid (fig. 5). They are seen more often when there is no history or laboratory evidence of a gonorrheal infection than in the presence of such infection. We have come to feel that they are the result of chronic strain at points of ligamentous attachments. In the past ten years none have been removed by operation. When a proper weight bearing position of the foot has been obtained and the foot strain has been relieved, the symptoms have disappeared in all but a few cases. In these, temporary protection of the spur by a pad cut to surround it has given relief.

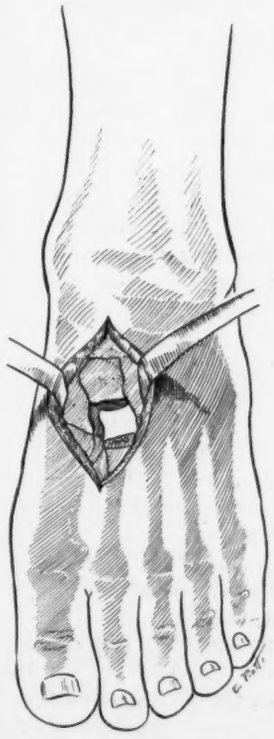

Fig. 5.—Operative procedure for the removal of the proximal end of the metatarsal bone.

A disability constantly associated with arthritic involvement of the feet is epidermomycosis. The usual clammy condition of the skin, with impaired venous return, seems to offer an excellent medium for the growth of such infection. The infection yields readily to the usual remedies, but reinfection often occurs until the arthritis becomes quiescent and the circulation in the foot improves. When it has not been treated, healing of operative wounds has been markedly delayed.

Both local and systemic measures should be used to regain function in the foot crippled by arthritis.[5] Treatment of the foot itself is inadequate, for disability will tend to recur unless the disease becomes quiescent. In treating deformities of the foot, one must appreciate the effect of contractures of the hip or the knee or of faulty posture on the function of the foot. An understanding of the disabilities which may arise in the feet and careful attention to preventing or correcting them will lessen greatly the permanent disabilities which follow chronic arthritis.

CONCLUSIONS

1. In chronic arthritis the feet are frequently attacked. They are often neglected in the treatment of the disease.

2. Deformities develop insidiously which can be prevented in the early stages by normal weight bearing and by proper support of the feet in walking until the disease is quiescent.

3. When there is extensive stiffness and pain, weight bearing should be avoided until the pain subsides.

4. With extensive deformity, operative procedures are often required. The simplest and least traumatic procedures to secure a good position for function will give the best result.

372 Marlborough Street.

5. Fortin, H. J.: The Care of the Feet in Chronic Arthritis, Proc. Staff Meet., Mayo Clin. 3: 240 (Aug. 15) 1928.

ABSTRACT OF DISCUSSION

DR. LOUIS E. PAPURT, Cleveland: Dr. Kuhns has brought out that good body alinement and function, especially of the knees and hips, are essential in the restoration of good function of the feet. Conversely, many an excellent work of reconstruction or preventive surgery of the knees and hips has been nullified by neglect of the feet. There are two points that I wish to add to the author's comprehensive outline: 1. Reports by Dr. Kuhns and his associates have indicated that at least 40 per cent of arthritic patients have intercurrent diseases. This means frequent periods of disability and bed rest. During these periods, laxity and atrophy of the muscles and ligaments of the feet take place. A little preventive medicine in the form of heat and massage to the muscles plus active exercises to maintain muscle tone, and perhaps a soft arch prop as a temporary splint, will greatly lessen the post-illness disability and prevent recurrences of the deformities of the feet which may have taken so much time and effort to correct. 2. I have noticed in patients, especially middle aged stout women, who have suffered from arthritis of the ankles and feet which may be quiescent, a hypertrophy of the fibro fatty tissue of the sinus tarsi or of the fat under either malleolus or even hypertrophy of the ankle synovia. These fat pads have been the seat of chronic passive congestion with fibrosis or actual inflammation and are often quite tender and painful. They tend to prolong the disability, and simple excision has given gratifying relief.

DR. JOHN P. STUMP, New York: An exceedingly important point in Dr. Kuhn's paper is the early use of correct footwear to prevent deformities. If medical colleagues will give orthopedic surgeons the opportunity to treat patients at the onset of arthritis, deformities can very frequently—almost always—be prevented. Furthermore, when feet are just beginning to show arthritic changes, correct footwear and adequate rest will do much to control the inflammatory process and maintain strong weight bearing extremities. In arthritic feet with definite midtarsal distortion associated with spasm or fibrosis, rigid foot plates have given me the best results. It was with hesitation that rigid foot plates were employed because of the fear that they would produce added discomfort in already painful feet. However, manipulation, either with general anesthesia or with injection of the superficial peroneal nerve with procaine hydrochloride followed by immobilization, has been unsatisfactory. Best results have been obtained by personally making plaster-of-paris impressions of the distorted feet, having plates made to conform to these impressions without any effort at correction, insisting that the plates be made of a metal malleable enough to be readily reshaped in my office, adjusting the plates at frequent intervals to obtain correction, and carrying out the adjustments in an exceedingly careful and gradual manner. By this treatment the static strain on the soft tissues, and hence the discomfort, has been relieved and the patients made ambulatory in the shortest time.

Medicine and Surgery Tend to Converge.—And in all of this new visceral surgery it seems to me that the physician has merely come to do his own operating, that internal medicine is merely becoming surgicalized, much as military surgery has become largely medicalized. . . . And what is happening in these specialties is an indication of the tendency in the two major branches, for internal medicine and surgery, as the treatment of disease grows less empirical, unquestionably tend to converge.—Cushing, Harvey: Consecratio Medici and Other Papers, Boston, Little, Brown & Co., 1928.

FOOT DISORDERS IN GENERAL PRACTICE

DUDLEY J. MORTON, M.D.
NEW YORK

Only a small percentage of patients with a disorder of the foot reach the orthopedic surgeon; the rest—an overwhelming majority—are left unaided to seek relief wherever they can find it. For years they have been exploited so extensively by unqualified, nonprofessional agencies as to create a unique situation and one that has been accepted or condoned by the profession with extraordinary complacence. Why should these common ailments of the feet be so obviously the "ugly duckling" or "unwanted stepchild" of medicine?

At the beginning of this century, textbooks on orthopedic surgery suggested two primary causes of foot trouble, applying them to the disorder in the longitudinal arch and also in the metatarsal region of the foot; they were (1) badly designed footwear and (2) weakened musculature. After having received broad acceptance and approval for so long a period, it might be expected that these interpretations of primary factors would by now be well fortified with statistical and factual evidence; but such evidence is strangely lacking.

The original impeachment of "faulty footwear" applied to shoes that were worn before the turn of the century and when they were designed and fitted with little consideration for the welfare of the foot. But even so, the injurious effects were limited chiefly to deformities of the toes and not to disorders of the foot proper. Since that time, however, and especially since the war, great improvements have been made both in the design and in the fitting of footwear. For men and children, shoes are now constructed closely along anatomic lines, and for women also conservative, well designed models are amply available. The high heel types are admittedly vicious, especially when worn continuously; they account chiefly for the far greater frequency of foot trouble in women than in men. But with this particular exception the severe criticism aimed at nineteenth century footwear does not have the same application today. Continuation of that criticism seems to be more a matter of habit than of reason; it has been fostered and sustained most loudly by the competitive claims of rival shoe merchants.

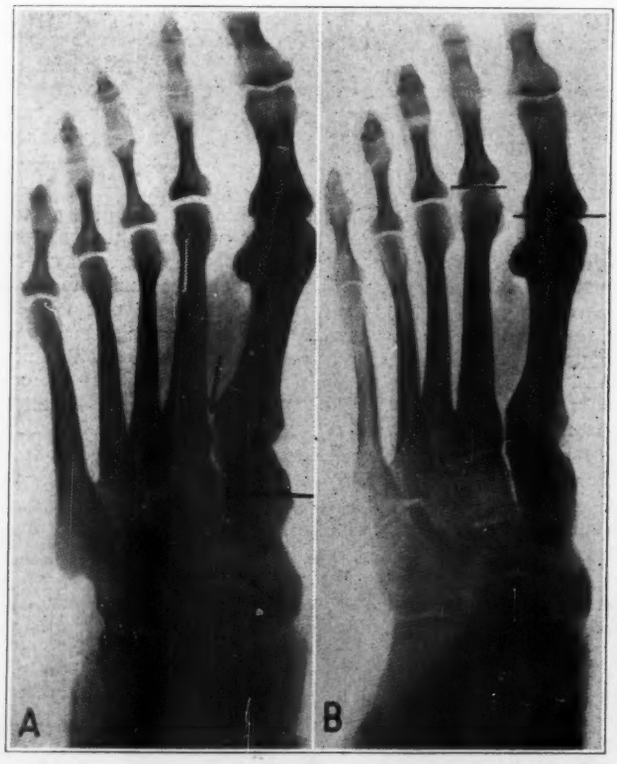

Fig. 1.—*A*, hypermobility of the first metatarsal segment is indicated by broadened line of lesser density between the cuneiform bones. Note enlargement of the shaft of the second metatarsal compared with the third, fourth and fifth. *B*, shortness of the first metatarsal. Note the similar increased development of the shaft of the second metatarsal.

Fig. 2.—Marked hypertrophy of the second metatarsal in a foot of a middle-aged person with all three factors of deficiency of the first metatarsal present.

"Muscular weakness" has been given as the other primary cause of disorders of the foot. In the longitudinal arch the characteristic "weak ankle" or pronated posture of the foot is interpreted as due to weakness of the muscles on the inner side of the ankle and foot (the tibial muscles and long flexors of the toes), while in the metatarsal region "weakness of the muscles and ligaments" is vaguely referred to as permitting a falling or depression of an alleged "anterior transverse metatarsal arch."

Examinations of muscular strength in normal and pronated feet have shown individual differences in the comparative strengths of the supinators and pronators in the feet of all the persons examined; but these differences were so distributed among the normal and the pronated as to afford no significance whatever in their relation to abnormal posture.

The suggested "weakness of muscles and ligaments" in the forepart of the foot, permitting depression of an "anterior transverse metatarsal arch," is also vague, first, because there is no transverse arch formed by the heads (anterior ends) of the metatarsal bones as implied by that term and, second, from the standpoint of anatomy, there is neither a muscle nor a ligament in that part of the foot capable of sustaining such an arch if one were present.

Under thoughtful analysis, the given causes are not specific and concrete as basic factors should be; in failing to supply an etiologic basis that clearly explains the mechanism of disorder they appear to be chiefly responsible for the lack of interest so generally shown

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by physicians. The studies presented here, reported in greater detail elsewhere,[1] disclose certain structural factors whose primary disturbing influence on the function of the foot is plainly demonstrable. They are described here because through accurate knowledge of primary causes general practitioners, as a group, can become the most important and effective agency in controlling the extensive incidence of disorders of the foot and in establishing a normal professional relationship with the public in this avoided field.

NORMAL PHYSIOLOGY

Studies in the past have been made chiefly from observations of the foot as a composite unit and in terms of total function, so that the values of integral parts have escaped due consideration. The importance of the latter phase in the analysis of any composite structure becomes obvious when it is recalled how the total power output of an engine can be seriously affected by the maladjustment of some minor part, or how the volume and tonal qualities of a radio can be ruined by defect in a single unit. In such instances, only through familiarity with what each part of the structure should perform can a person knowingly locate and correct the trouble. Such an analysis of segmental values has been employed as the basis of the present investigations, and a physiologic, rather than a morphologic, approach has been followed.

Human feet are designed for two extreme types of function; they serve (1) as a stable base for standing erect—a relatively passive act because it calls for a minimum of dynamic (muscular) action—and (2) as levers in forceful locomotion (running and jumping) in which the dynamic action of the muscles strongly predominates. Walking, an intermediate type of function, includes modified phases from both of the extreme types of function.

In stance, half of the body weight is transmitted by the leg bones on each foot, where it is divided, a part passing backward to the ground through the heel, the rest being carried forward and distributed among the five metatarsal bones for transmission to the ground. It is important to distinguish this weight bearing function of the foot proper from the purely accessory action of the toes, because the latter are not involved in the actual support of body weight. This is easily demonstrated, for when a person stands erect he can lift his toes from the floor without any shift in the body's center of gravity. If he bends forward or intentionally shifts his weight in that direction, contraction of the flexor muscles pulls the toes into firm contact with the floor, thereby adding their length to the anterior stabilizing property of the foot. Body weight, however, is still being borne essentially by the metatarsal bones.

With the framework [2] of the foot thus recognized as the prime weight supporting structure, its elements of stability should be identified. It is triangular as viewed from above. The heel, representing the posterior corner of the triangle and being a single point of contact, is of itself without stability in any direction. The added contact of the forepart of the foot to the ground is necessary for anteroposterior stability, and its width through the spread of the metatarsal bones furnishes the necessary elements for stability in lateral directions.

A staticometer was designed to learn what each weight supporting segment contributed to the support of body weight and to the structural stability of the foot. The tests showed that, in normal stance, weight stresses are divided equally between the heel and the forepart of the foot; and, of basic importance to subsequent studies of foot disorder, it was found that the forward stresses were normally distributed on metatarsals 1 to 5 in the approximate ratio of 2, 1, 1, 1, 1 respectively. Since the sesamoid bones beneath the head of the first metatarsal serve as two points of contact for that bone, six points of ground contact are to be recognized in the forepart of the foot with each transmitting an equal share of body weight (fig. 3 *a*).

Thus in a person of 120 pounds (54 Kg.) the distribution of weight in stance is as follows: To each foot, 60 pounds (27 Kg.); to the heel, 30 pounds (13.6 Kg.); to the first metatarsal, 10 pounds, or 4.5 Kg., (each sesamoid 5 pounds, or 2.3 Kg.); to the second, third, fourth and fifth metatarsal, 5 pounds to each. These tests help to identify the foot not as a single arched unit but as a series of five separate longitudinal arches united posteriorly in the heel. In these arches the adjustment of the plantar ligaments to the front segments is so accurate that in gaining supporting contact on a level surface the metatarsal bone of each longitudinal span receives only its apportioned share of the total load. Also, by locating between the second and third metatarsals an even division of stresses imposed on the forepart of the foot, one is able to identify an axis, or plane of balance, as passing through this point and through the centers of the ankle and heel. The width of metatarsal contact with the ground on each side of that axis (*IB* and *BV*) represents the equal margins of structural security that characterizes the foot in normal posture.

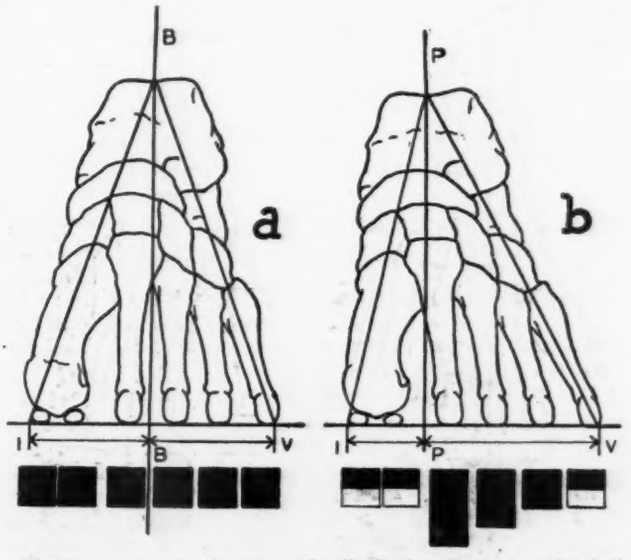

Fig. 3.—*a*, normal ratio of weight distribution (2, 1, 1, 1, 1) indicated by equal sized squares. *BB*, vertical plane of balance, *IB* and *BV*, equal medial and lateral margins of structural stability. *b*, first degree pronation. Note concentration on the second and third metatarsals. Also see figure 5*A*. *PP*, vertical plane from center of ankle. Note reduced medial margin of stability (*IP*).

Standing involves continuous static strain for periods of greater or less duration. This is a type of strain which ligamentous tissue is specifically designed to withstand. Also it may here be noted that both to the rear and forward the static stresses are divided through the framework of the foot in close accordance with the pro-

1. Morton, D. J.: The Human Foot, New York, Columbia University Press, 1935.

2. The term "framework" includes the bones and also the ligaments; for, like rivets in the steel framework of a building, the ligaments are the essential binding elements that maintain the supporting units in position.

portionate stoutness of the six supporting segments; namely, the heel, the first metatarsal and the four lateral metatarsal bones.

Forceful locomotion, the opposite extreme in function, presents quite different physiologic features from stance. When propelling force is applied on the heel by the calf muscles (gastrocnemius and soleus), body weight is levered forward along a second, or leverage, axis of the foot.[3] This axis differs from the axis of balance in that it passes between the first and second metatarsals instead of the second and third. In the ideally designed human foot the heads of the first and second metatarsals are equidistant from the heel, so that when the heel is raised in locomotion the heads of these two bones act together as the fulcrum of leverage (fig. 4*A*). The movement is helped by the bowstring action of the muscles located on each side of the ankle behind the malleoli, while at the same time these muscles act as sides of a trough to keep the movement balanced on the leverage axis.

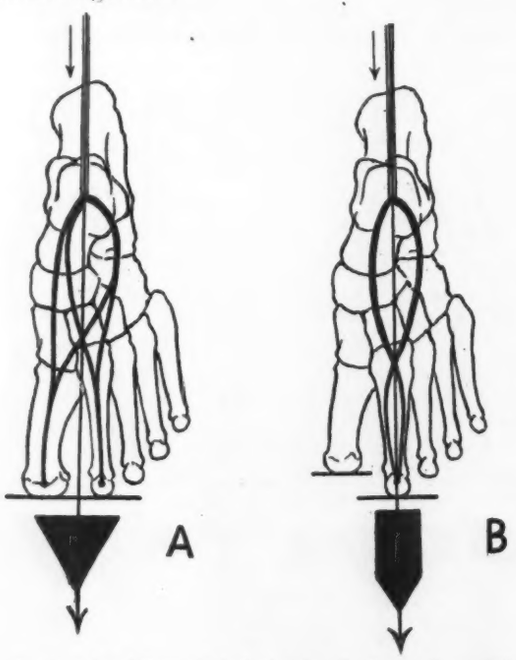

Fig. 4.—*A*, axis of leverage indicated by the long arrow. The first and second metatarsals share the leverage stresses. *B*, a short first metatarsal causes leverage stresses to be concentrated on the second metatarsal alone. Also see figure 5*B*.

In locomotion the weight stresses are thrown entirely on the fore part of the foot through two bony channels. The lateral stream passes toward the cuboid bone, where it is deflected medially by the peroneal muscles and by the three lateral metatarsal bones which act as auxiliary levers. In order to counterbalance the outward movement of the lateral stream, the medial stream is at first directed somewhat inward in conformity with the mild medial deviation of the neck of the talus. It is then swung more forwardly and laterad by the muscles acting on the inner border of the foot (tibials and long flexors of the digits). The two streams now converge on the two inner cuneiform bones and the bases of the first and second metatarsals, whence they are transmitted to the ground. Thus in forced locomotion the stresses are balanced on the axis of leverage, and the heads of the first and second metatarsals act together as the fulcrum.

3. Studies in the evolutionary development of human feet have shown that this leverage axis is a prehuman feature and that the longitudinal arch has been formed in direct relation to it. The axis of balance is a later acquisition, attained only as the inner border became permanently arched.

In walking, the movement of these stresses is modified. In the early half of the foot's contact with the ground they are centered on the axis of balance and then swung toward the fulcrum.

In contrast to the continuous and milder static strains of stance, forceful locomotion introduces brief and violent strains and stresses, which converge on the forward inner corner of the triangular human foot; i. e., on the first and second metatarsals. The violence and concentration of these stresses would put a tearing strain on the plantar ligaments of these two medial segments were the excessive burden not absorbed by the posterior tibial and long flexor muscles. These muscles enter the foot in the vault of the longitudinal arch and therefore are located ideally to sustain the arched segments against the crushing force. The first metatarsal segment, in particular, is well protected by the flexor hallucis longus, the course of which runs immediately beneath it, while the intrinsic muscles within the foot also contribute directly to absorption of these concentrated stresses.

LIGAMENT VERSUS MUSCLE FUNCTION

In view of the widely held concept that the muscles are the chief means of supporting the longitudinal arch, it seems fitting to point out how specifically and differently the requirements of stance and locomotion concur with the distinctive functional qualities of ligaments and of muscles. Just as ligaments are uniquely adapted for the continuous and prolonged strain of static stresses in stance, so the brief, intermittent and violent stresses of locomotion are directly in accord with the known physiologic properties of muscle tissue. Such individual spheres of action indicate that the muscles are not employed to sustain the arch but that their function in stance is merely to hold the leg bones vertical on the foot by means of a light tonal tension. For example, the relaxation of the muscles in a fainting person does not alter the contour of the foot but it eliminates normal control of the leg bones in their position above the foot. In other words, the muscles on the two sides of the ankle act on the leg as stays on the mast of a ship; the purpose of the stays is to maintain the mast in proper relation to the ship's hull and not to pull the hull into a correct position beneath the mast. In both instances the foot and the hull are the stable basic structures while the leg bones and the mast are the mobile elements. Only a light tonal effort is normally required of the muscles to balance the leg bones in stance on a stable foot; but a strongly sustained contraction, as implied in direct support of the arch under body weight, is entirely incompatible with our knowledge of muscle physiology. It may therefore be concluded that, so far as the arch is concerned, stance calls only for ligamentous function while locomotion utilizes both ligamentous security and muscular protection and activity.

DISORDERS OF THE FOOT

Physiology indicates that intrinsic as well as extrinsic factors are to be considered in foot trouble. Leg muscles and shoes represent extrinsic factors because they are outside the foot itself. In contrast, intrinsic factors are those which, being located within the foot, affect its internal mechanism directly.

The heel is conspicuous in its size and in the importance of its functional rôle both in stance and in locomotion; but the postural security of the heel as well as of the entire foot is directly dependent on the radiating spread of the more lightly built metatarsal segments which gives the foot its breadth. Consequently the fore-

part of the foot is the prime factor in foot posture, and of its five segments the first metatarsal segment has been shown to be of greatest functional importance. In stance it is the essential stabilizing member on the medial side of the foot and normally supports twice the load carried by each of the others; in locomotion it alone with its associated muscles sustains half of the greatly intensified stresses imposed on the foot. Thus the first metatarsal segment is marked as so vital a unit to the mechanics of foot function that any defect or deficiency in it would impair the foot's entire mechanism. Also, because of its corner position in the foot's triangular framework the disturbance would involve to a greater or less degree both the arched inner border and the front border.

The two most common external signs of foot disorder are (1) a pronated, unbalanced posture and (2) callus formation on the sole of the foot, behind the second and third toes. Pronation occurs usually as "weak ankles" early in child life. Its long recognized association with trouble in the longitudinal arch has not only made it the best known sign of foot disorder but has established it also as a morphologic index by which the degree of trouble is estimated. Callus formation in the area designated is likewise typical of foot disorder but, since it does not develop as a rule until after physical maturity (25 years or more) has been attained, its significance is not so generally recognized.

Both of these signs point directly to a functional deficiency in the first metatarsal segment. Whenever such a deficiency exists, the stresses which this segment should normally carry are shifted and concentrated on the adjacent second. This phenomenon is consistently associated with hypertrophy of the shaft of the second metatarsal bone. Physiologic tests confirm this interpretation.

Two structural conditions have been identified which are directly responsible for the impaired functional qualities of the first metatarsal segment. They are (1) laxity of its plantar ligaments, allowing a dorsal hypermobility which prevents the first metatarsal from attaining firm supporting contact with the ground at the same time as the others (figs. 1*A* and 5*A*) and (2) shortness of the first metatarsal bone, whereby the more advanced head of the second metatarsal must serve alone as the fulcrum of the foot's leverage action (figs. 1*B* and 5*B*).

Dorsal Hypermobility (fig. 1*A*).—Laxity of ligaments in the first metatarsal segment affects both distribution of weight and postural security. The double burden it normally supports in stance falls on the second metatarsal in the same way as when five men are carrying a heavy log and the man on one end lets go his hold—his share falls immediately on the man next to him. Also, through the relative noncontact of the first metatarsal, the medial margin of structural security is primarily reduced to the short distance between the normal axis of balance and the head of the second metatarsal.

The overloading of this more slenderly built bone causes its ligaments to be strained and stretched, and the foot pronates or rolls mediad. If the hypermobility of the first metatarsal segment is slight, ground contact is quickly gained and the movement is arrested; but with the following modifications in function which characterize what may be designated first degree pronation (fig. 3*b*). The vertical plane through the center of the ankle joint is now shifted between the first and second metatarsals. There is also a medial shift in weight from the outer border of the foot, so that weight distribution has been changed to the approximate ratio of 1, 2, 1.5, 1, 0.5. Static stresses are still concentrated on the second metatarsal, but the first metatarsal has reassumed some weight bearing function, and its width now alone comprises the reduced margin of structural stability. Such feet are not appreciably impaired for the active function of locomotion (in fact, they are commonly seen among athletes), but they tire more easily under prolonged standing than feet with normal posture.

Where greater laxity in the plantar ligaments of the first metatarsal segment exists, pronation must proceed further before that segment acquires effective ground contact. Second degree pronation may therefore be considered the stage in which the center of transmitted weight on the ankle has moved mediad until the vertical plane (passing through it and the central point of heel contact) projects forward through the head of the first metatarsal bone. The medial margin of structural stability is now eliminated, and only the muscles and the ligaments on the inner side of the ankle and foot remain to prevent greater unbalance in posture. Until

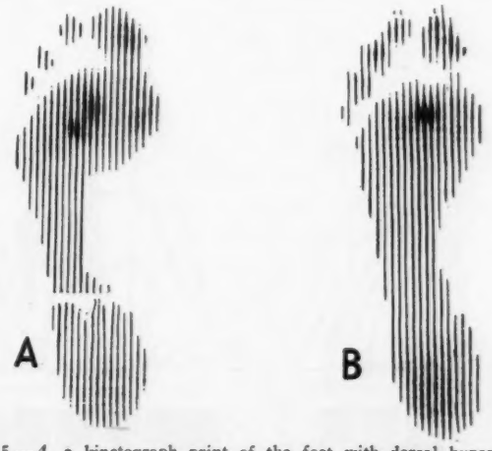

Fig. 5.—*A*, a kinetograph print of the foot with dorsal hypermobility of the first metatarsal segment (fig. 1*A*), showing concentration of leverage stresses on the second and third metatarsal in walking. *B*, a similar kinetograph print of the foot with a short first metatarsal (fig. 1*B*) showing concentration of stresses on the second metatarsal only.

contact of the first metatarsal with the ground is gained, weight distribution is increasingly disordered to a ratio approaching 0, 3, 2, 1, 0 (fig. 1*A*). The exaggerated load on the second and third metatarsals introduces two sources of symptoms: cumulative strain of their basal joints, causing a local traumatic arthritis (usually subacute), and callus formation from intensive pressure on the skin beneath these metatarsal heads.

Such feet are definitely predisposed to joint and muscular strain both in stance and in locomotion. When standing is of more than brief duration, the lack of medial security allows the unbalanced posture to increase and, in order to prevent it, the muscles are kept in a constant state of hypertonic tension; they tire and yield, with the result that the unrelenting static stresses fall even more heavily on them. Eventually only the ligaments of the inner side of the ankle and foot remain effective to obstruct further unbalance and deformity.

The mechanical elements of locomotion are thrown out of order correspondingly. The pronated posture alters the position of the joint surface beneath the talus, depressing its inner margin (sustentaculum tali). Consequently body weight becomes deflected more and more heavily on the medial border of the foot and against the muscles on that side of the ankle. These muscles

must resist and redirect this exaggerated load back on the foot and on the metatarsal heads as the fulcrum. However, persons with second degree pronation may never manifest subjective symptoms if they lead sedentary lives and avoid physical activities in excess of the reduced capabilities of their feet.

The evidence indicates very clearly that the muscles are not primarily at fault in disorders of the longitudinal arch; on the contrary, it signifies that pronation is caused by lack of structural stability in the medial segment of the foot's framework and as a result the muscles suffer secondarily from abnormal overloading.

Third degree pronation, applied to more conspicuous cases of deformity, presents two distinct types, the rigid and the flexible flatfoot, with widely different ranges of clinical symptoms. Of course, all intermediate degrees between these two types are to be observed, as well as in the stages of advance from the milder to the more extreme degrees of deformity.

The rigid flatfoot results from progressive deformity and inflammatory changes begun usually at the stage of second degree pronation and exaggerated by continued

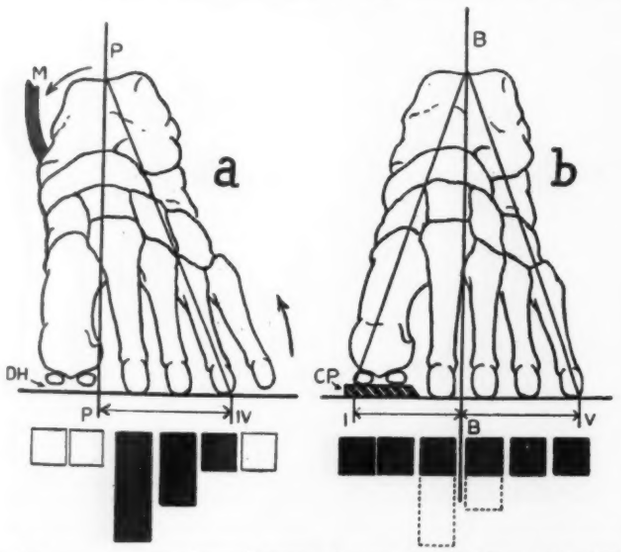

Fig. 6—*a*, a more advanced degree of dorsal hypermobility. *DH*, lack of ground contact. Increasing pronation (indicated by arrows) with greater disorder in the distribution of weight. Note complete loss of the medial margin of structural stability. *b*, use of compensating platform (*CP*) to correct distribution of weight and restore the medial margin of stability.

disordered function. Secondary faulty stresses are created which impose uneven and distorting pressures on joint surfaces and abnormal strains on ligaments. Alterations in the bones lead to a permanent loss of the arch. Arthritic and neuritic changes of a more lasting nature are established under the functional trauma. Vasomotor symptoms appear as a part of the nerve involvement. The advancing deformity causes further changes in weight distribution; the first metatarsal is forced to the ground more strongly and its load is steadily augmented as weight is shifted mediad from the outer border of the foot.

Flexible flatfoot, as the other type, is traceable to an unusual degree of ligamentous laxity in early childhood, or congenitally. In these cases subjective symptoms are comparatively negligible but the deformity is conspicuous. Such feet are distinguished from normal but very low arched feet by their marked pronation, their greatly reduced functional capabilities and the typical flatfoot gait.

The progressive course of longitudinal arch disorder as discussed clearly stamps second degree pronation as the critical stage. It covers the great majority of cases that present clinical symptoms. At this stage and prior to it, physicians have their greatest opportunity to employ corrective and preventive help with maximum success.

Shortness of the First Metatarsal Bone (fig. 1*B*).—This factor impairs the effectiveness of the first metatarsal segment chiefly in locomotion, because the more advanced position of the head of the second metatarsal causes the latter to act alone as the fulcrum of the foot's leverage (figs. 4*B* and 5*B*). When the heel is raised in locomotor effort, all the stresses must converge on, and be transmitted by, this more slender bone. The condition is an inherited one and its presence from birth causes the shaft of the second metatarsal to become increasingly hypertrophied throughout the physically active periods of life. The widening of its shaft results apparently from the convergence and crossing of the two streams of locomotor stresses; the thickening of the walls (cortex) seems due more directly to the exaggerated vertical stresses.

A short first metatarsal bone affects chiefly the basal joints of the second metatarsal segment by reason of the intensified breaking strains imposed on the latter's plantar ligaments. These strains, acting as repeated injury, produce a local inflammatory reaction of the midtarsal joints, which becomes gradually an actual traumatic arthritis, accompanied at times by an effusion tending to separate the bones. When this occurs, the normally close approximation of these bones is lost and minor movements are permitted which are highly irritating to the adjacent nerves (Morton's metatarsalgia [4]).

A short first metatarsal bone forms a very unfavorable combination with the high heeled shoes of women. Such shoes hold the foot at midpoint in the arc of leverage action, so that both in stance and in locomotion the second metatarsal bone is constantly subjected to a severe overloading of weight stresses.

Of similar effect as shortness of the first metatarsal, a third factor has been identified in a rearward position of the two small sesamoid bones that normally underlie the head of that bone. Since these sesamoids represent the contact points of the first metatarsal with the ground, whenever they are located more proximally toward the neck of that bone and posterior to the head of the second metatarsal they create a potential shortness of the former and affect the mechanism of the foot accordingly.

SYMPTOMS AND DIAGNOSIS

Functional deficiency of the first metatarsal segment furnishes a basis on which the widely diversified range of symptoms in foot disorders are easily interpreted and understood. The three structural factors identified may exist singly, but usually they occur in combination (fig. 2). In either case their effect on the foot's mechanism is consistent and positive. They are to be regarded as primary causes because they directly reduce the functional capabilities of the feet. However, in order for clinical symptoms to appear, their presence must be supplemented by abusive function—abusive, not from the point of view of what normal feet can stand but because it is excessive to the subnormal capabilities of these feet. The abusive elements are of two major classes: (1) unfavorable conditions of function, which apply to environmental or personal factors, such as hard floors, city pavements, high heeled shoes and ill health, and (2) excessive degrees of function, such as long

4. First described by Prof. T. G. Morton in 1876.

hours of work on the feet, violent sports and obesity. After subjective symptoms have once been established, another factor—traumatic inflammatory changes—has been added and must be reckoned with in the explanation of symptoms as well as in the scheme of treatment.

Symptoms are traceable to two primary sources: (1) uneven distribution of weight on the metatarsal bones with stresses concentrated chiefly on the second, and (2) loss of structural stability on the medial side of the foot.

Uneven distribution of weight is associated with all three of the structural factors. It is responsible for superficial and deep symptoms. The superficial symptoms are caused by excessive skin pressure and usually start as a burning sensation in the sole of the feet, later followed by callus formation under the middle metatarsal heads (especially the second). This callus may become thick enough to act as a foreign body and be an added mechanical source of local pain. Deeply, the strain of the basal joints sets up a traumatic arthritis, which in the more acute cases presents a characteristic area of deep tenderness (fig. 7). Because of its close proximity to these joints, irritability or inflammatory involvement of the medial plantar nerve with the fanlike distribution of its branches accounts for the various types of metatarsalgic pain in disorders of the foot. The second source of symptoms, loss of medial stability, is more commonly caused by dorsal hypermobility than by shortness of the first metatarsal. Pronation muscle exhaustion and spasm, and pain from strained ligaments along the inner border and arch of the foot are its more characteristic symptoms.

All the foregoing symptoms may be regarded as primary because they are directly allied with the original phases of disorder. However, after the establishment of the inflammatory condition, symptoms and changes of a secondary nature make their appearance. The signs of nerve involvement predominate subjectively and increasing deformity objectively. Pain is extended up the legs and thighs to the back, while in the feet local areas of numbness, tingling or sharp pain develop. Vasomotor disturbances appear also; the feet perspire profusely; they may become discolored or mottled in appearance, and swelling may occur in the feet and ankles. In advanced cases of disorder of the longitudinal arch, the tarsal bones become altered in shape because of uneven, distorting contacts, and the foot is gradually depressed into fixed and rigid flatfoot deformity. In metatarsalgic cases progressive claw toe deformity is the more characteristic change.

The most valuable and accurate means of diagnosis is the dorsoplantar x-ray film of the foot with the x-rays centered on the middle cuneiform bone. Although x-ray examinations are rarely used in these cases, the evidence that they disclose of faulty function gives them the same relation to foot disorders as cultures to bacteriologic diseases.

The first feature to receive attention in the film is the presence and the degree of enlargement of the second metatarsal in comparison with the three outer metatarsal bones, because it is a definite index of abnormal distribution of functional stresses. Width of the shafts and thickness of cortex must be considered in the comparison; also age, as such hypertrophy is less developed in younger, than in older, persons.

Shortness of the first metatarsal, actual or potential, is identified by the position of its head and of its sesamoids in relation to the head of the second metatarsal (figs. 1 *B* and 2).

Dorsal hypermobility of the first metatarsal segment is indicated in the x-ray film by a broadened line of lesser density extending backward between the medial and the middle cuneiform bone from the first intermetatarsal space (figs. 1 *A* and 2).

A lateral x-ray view of the foot is desirable to complete examination data and is especially helpful in differential diagnosis.

Shortened Calf Muscles.—There is one extrinsic condition which may be either an important direct or a contributing factor in functional disorders of the foot. It is a shortening of the calf muscles (gastrocnemius and soleus) which reduces the normal range of dorsiflexion of the foot. Although most commonly acquired by women through constant use of high heeled shoes, it is sometimes congenital or may develop during a protracted period of illness in bed, unless care is observed toward its prevention. In the cases caused by the use of high heels, symptoms of foot trouble usually follow an abrupt change to very low or flat heels; the feet are strained and forced into pronation by the crushing leverage of the legs on the arch under the momentum of locomotion. The mechanism of disorder differs from that of a hypermobile first metatarsal segment in that the concentration of stresses falls directly on the first metatarsal instead of on the second. After any long illness, weakness of the ligaments is an additional factor in this type of foot trouble.

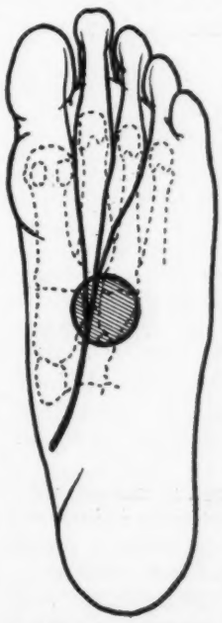

Fig. 7.—Characteristic point of deep tenderness in the sole indicated by shaded circle. Observe the immediate proximity of the medial plantar nerve and distribution of its branches.

TREATMENT

Ordinary disorders of the foot are not difficult to treat and respond readily to a thoughtful and methodical plan of procedure. The important objective to be borne in mind is first to restore a painless condition and then to establish improved conditions of function. This demands equal attention to three clearly defined sources of pain and disability, namely, (1) superficial irritation, (2) deep trauma and inflammatory changes, and (3) disordered mechanics.

1. *Superficial Irritation.*—The first step in treatment applies to all surface elements of discomfort. Painful calluses, corns, warts or other skin growths should be regarded as foreign bodies. Their immediate removal or treatment is indicated just as positively as a pebble in the shoe or a cinder in a person's eye. Patients will not recognize success in treatment of foot disorders as long as they continue to experience discomfort from these superficial sources. The manner of treating them, whether through the services of a chiropodist or by means of x-rays, radium, electricity or chemical preparations, is best determined by the nature of the growth. After their removal, the area should be protected with adhesive tape or moleskin for a period of a month or six weeks.

It is equally necessary to check immediately on the style and fitting of the shoes, especially the shoes that are worn during working hours. A conservative, conventional model is recommended for which no claims are made other than that it is an article of apparel,

just as a hat or a glove. Proper fitting should provide ample length and toe space. A straight inner border is not desirable if it gives too much room to the great toe and cramps all the smaller ones. The heel fit should be snug, and there should be sufficient metatarsal width both in the upper and in the sole. In women's models it is not uncommon for the sole to be cut so narrow that the head of the fifth metatarsal overhangs the edge instead of being supported on the flat surface of the sole. Also a light metal reinforcement is a desirable feature in the narrow shank of women's shoes. This reinforcement is not an arch support but a useful stabilizing element between the high and narrow heel in back and the front portion of the shoe.

In general, the shoe should be a protective, physiologic foot covering, thoroughly comfortable and reasonably gratifying to the esthetic sense of the patient. Greater liberty may be granted toward shoes used for dress occasions, because then the feet are not usually subjected to the same degree of functional strains. A little discretion in selecting shoes according to occasion will do much to prevent, as well as cure, painful foot trouble in women.

2. *Deep Trauma and Inflammatory Changes.*—One of the most important factors toward successful treatment is a clear realization of the irritated state of the deeper tissues and their need for specific care. Too frequently an immediate cure is expected from the mere application of some mechanical device to the foot or shoe. The presence of subjective symptoms leaves no question as to the traumatized state of the tissues beneath the surface of the foot, and it is equally obvious that function is the traumatizing agent. Sick people are put to bed; strained joints in other parts of the body are immobilized and treated locally; but strained feet are expected to get well while they continue their usual daily labors. Thus it is not always easy to obtain full cooperation of the patient.

Emphasis must be placed on the fact, therefore, that all reasonable restriction of physical activities is imperative during the painful period. In addition, a brief interval of reclining or sitting with the feet elevated to hip height should be arranged for the morning and afternoon, in order to minimize the cumulative irritation of continued function.

Circulatory stimulation is the most effectual means of combating muscular exhaustion, trauma of the tissues and inflammation, and also the various forms of nerve and vasomotor disturbance. Different forms of physical therapy are used for this purpose, but contrast plunges deserve special mention because of their high degree of effectiveness while entailing little or no expense to the patient. They are taken in two buckets with the water of sufficient depth to submerge the feet and legs at least 6 inches above the ankles. The timing is important.

The feet are plunged first into the hot water as hot as can be borne comfortably for one and one-half minutes and then immediately into the cold water for one-half minute. After repeating the process five times, the feet are dried by a brisk rub with a rough towel. This treatment should be followed by a half hour of reclining, during which light exercise of the toes and ankles is recommended in order to maintain the circulatory stimulation. Contrast plunges should be taken once a day and preferably as soon after working hours as possible. In more acute cases, they may be taken twice a day and followed with a local analgesic rub.

Special exercises are useful after subjective symptoms have subsided; before then exercises in which body weight is borne on the feet may do more harm than good. In the present studies not weak muscles but strained and exhausted muscles are being considered. Therefore rest is more strongly indicated than extra work. Routine exercises may be used advantageously later, especially for their general tonic effect.

The clinical importance of the second phase of treatment cannot be overemphasized. Restricted activity, rest with the feet elevated, and stimulated circulation are essential measures toward overcoming painful symptoms. Naturally they are to be used coincidentally with the third phase of treatment, but with the clear understanding that mechanical devices are primarily protective and aimed at preventing a continuation or recurrence of faulty strains and stresses.

3. *Disordered Mechanics.*—Various types of arch supports, pads, anterior bars, wedges and adhesive strappings have been employed with success for many years. Their use has been described so fully in the literature that present consideration may justifiably be given to two methods of treatment that have resulted from the present investigations. One method is adapted especially for the treatment of foot disorders in adults, while the other is suited more specifically to the "weak foot" condition in children. Both are easy in their application, and their effectiveness has been well demonstrated by several years of experimental use.

It has been shown that disorder in the longitudinal arch and also in the metatarsal portion of the foot originates as a functional deficiency of the first metatarsal; through either laxity of ligaments or shortness, this member lacks the necessary supporting contact with the ground. However, while that contact cannot be gained by the bone, it can be accomplished by raising the supporting surface beneath its head. Thus a proper degree of elevation will take up the slack in lax ligaments and cause the first metatarsal bone to assume its share of function and relieve correspondingly the overload on the second metatarsal (fig. 5*B*); also such effective contact will reestablish the medial margin of structural stability and safeguard the muscles from abnormal strain. When the first metatarsal bone is short, the elevation has the effect of supplementing its length and thereby compensates for this type of fault.

An insole has proved to be the most practical medium for applying this principle. It includes the compensating feature in the form of a small platform, which is located under the head of the first metatarsal. Since the proper height of the platform can be determined only by trial, an insole permits easy removal for any necessary adjustments, while it maintains the platform securely in position when in use. This method makes no attempt to supply an artificial support which acts by assuming the weight stress that should normally be borne by the structure of the foot. It operates by creating a more natural distribution of the stresses to every segment of the foot, just as properly fitted glasses, by compensating for defects in the lens, restore normal vision through corrected distribution of light rays on the retina.

The second method, which is especially useful in children, employs a light piece of flexible metal covered with leather, whose base is located under the heel, and having an extension carried upward on the inner side of the foot to the region of the navicular bone. Body weight imposed on the heel is thus utilized through the extended portion to offer resistance to any tendency of the foot to roll into a pronated posture. As a result, stresses that would otherwise become concentrated on the second metatarsal are distributed on all four of the lateral metatarsals. This device, which may be called an

"arch control," does not establish function in the first metatarsal but protects this medial segment of the foot from the strains and progressive deformity of an unbalanced posture. When used in children, prevention of such strains affords the most favorable chance of a shortening adjustment of the plantar ligaments of this segment during the process of growth, so that effectual ground contact may subsequently develop. Here again there is no element of artificial support, the effort being to minimize abnormal function and to create conditions that are most likely to promote development along normal lines.

Mechanical devices should not be an added cause of pain. Any change in the distribution of weight will be accompanied with a sensation of strangeness, but proper adjustment should eliminate any feeling of actual discomfort from that source. When symptoms persist, it is well to check on the second phase of treatment as carried out by the patient. Too frequently the patient fails to realize its importance and with the first signs of relief subjects his feet to functional tests that interfere with steady improvement.

A snugly fitting, elastic-web band is a helpful accessory in cases in which effusion of the midtarsal joints is present and causes sharp pain along branches of the medial plantar nerve.

CONCLUSION

Instead of presuming all feet to be 100 per cent proficient, various degrees of limited capabilities must be recognized. Such feet are the ones that are predisposed to disorders; they become overstrained and develop subjective symptoms when exposed to the functional stresses that the more perfectly constructed foot can easily withstand.

The identification of primary causes as defects within the foot is most clearly revealed by an analysis of normal function of the foot and its earliest phases of disturbance. They comprise some form of deficiency in the first metatarsal segment; their presence and effects are demonstrable by x-ray examination and by physiologic tests.

Curative treatment as well as preventive care is more effectively based on correcting the original phases of functional disturbance than on the end results, as represented in a broken down mechanism.

Physicians have no reason to doubt their ability to treat the great majority of feet successfully; certainly they are far better qualified to do so than the agencies to which the public now flocks. Every urban practitioner can find among his patients many individuals who would be benefited greatly by his help. The mechanics of foot trouble are not difficult to understand, and a few x-ray pictures will go far toward demonstrating that he can analyze these disorders and symptoms with confidence. Treatment then becomes almost an automatic procedure, but it must include systematic attention to each of the three sources of symptoms.

Responsibility for the more difficult and exaggerated cases may well be shared with, or referred to, the orthopedic surgeon. But as in other physical ailments these advanced cases will probably comprise less than 10 per cent of the number that the physician will be able to take care of without aid.

Mothers in particular will be grateful for any help and advice given to them regarding the feet of their children. In the latter, patience is far more necessary than the prescribing of special exercises. This is said advisedly because, in relying on the growth process, permanent improvement is naturally slow; after suitable means of establishing improved function have been supplied, the general activities of children are usually sufficient for corrective development. On the other hand, disorders in adults may be more stimulating to one's interest because through the alleviation of subjective symptoms the results of treatment are more quickly apparent.

The foot is not an uninteresting organ. It possesses a record of man's prehistory which in completeness and in legibility surpasses that of any other structure in the body. Its modern weaknesses are no less interesting; they are widespread and justly entitled to qualified professional help.

630 West One Hundred and Sixty-Eighth Street.

Clinical Notes, Suggestions and New Instruments

INTERRUPTION OF INSULIN SHOCK THERAPY

ROBERT C. HUNT, M.D., AND HAROLD FELDMAN, M.D.
ROCHESTER, N. Y.

One of us recently had the opportunity of studying the technic of the insulin shock treatment of schizophrenia under the guidance of Dr. Manfred Sakel of Vienna. During this teaching demonstration it was observed that there were some patients who frequently failed to arouse from coma after the feeding of sucrose solution by stomach tube. We often waited well over an hour after tube feeding before resorting to intravenous injection of dextrose, which promptly and invariably restored the patients to consciousness. Since starting this form of therapy at the Rochester State Hospital, March 1, 1937, we have had the same difficulty. Four of the first nine patients treated frequently required intravenous injection of dextrose because of failure to arouse after stomach feedings of sucrose solution.

For convenience we have had our feeding solution prepared in 8 ounce (240 cc.) bottles, with concentrations varying according to the size of the dosage of insulin. The general rule has been 1 Gm. of sugar per unit of insulin. Since some of our patients required doses of from 150 to 200 units to produce satisfactory shock, it was necessary to make up sugar solutions of concentrations up to 80 per cent if the feeding was to be restricted to 8 ounces. After the repeated failure of some patients to arouse after these feedings, it occurred to us that this unphysiologic concentration of the solution might be responsible for its lack of absorption. Therefore, April 17 we began supplementing the feeding of sugar solution with about 10 ounces (300 cc.) of warm water. There was an immediate and striking acceleration of reaction from shock in every patient.

Data were analyzed on only the five patients who were fairly well stabilized on a shock dose for several days both before and after the change in technic. Three of these patients were good reactors who usually came out of coma after tube feeding without intravenous injection of dextrose. These three became fully awake from thirty-nine of the forty-one shocks preceding April 17 in an average of thirty-three minutes following tube feeding. Two of them required intravenous injection of dextrose once each, in an average of seventy-five minutes after tube feeding. When the feeding was diluted these three patients aroused from their next nineteen shocks in an average of eighteen minutes after feeding, and no intravenous injections were required.

The other two patients were poor reactors who usually required intravenous injections of dextrose to arouse them. In seventeen shocks preceding the change these two aroused without intravenous injections of dextrose only twice each, in an average of fifty-nine minutes after tube feeding. The other thirteen shocks, 76 per cent of the total, had to be terminated by means of intravenous injection of dextrose, in an average of fifty-three minutes after tube feeding. After the dilution technic was instituted these two aroused from eleven shocks

without intravenous injection of dextrose, in an average of forty-three minutes. They required intravenous injection of dextrose in only three instances, or 21 per cent of the total, and two of these injections were given within half an hour after tube feeding because of alarming physical conditions rather than because of delay in reaction.

We have not as yet used dextrose for the stomach feedings, although it is possible that it might be absorbed more rapidly than sucrose.

CONCLUSION

When one terminates therapeutic insulin shock with tube feedings of sucrose solution, more rapid absorption appears to take place if the solution is well diluted and warmed.

1600 South Avenue.

MOLDED PLASTER SHELLS FOR THE REST AND PROTECTION TREATMENT OF INFANTILE PARALYSIS

George E. Bennett, M.D.; Milton C. Cobey, M.D., and Henry O. Kendall, Baltimore

During the exhibition of the rest and protection treatment of infantile paralysis at the last session of the American Medical Association, many physicians requested that we report in detail the method of making molded plaster shells and covering them with a water-proof material which increases the life of a cast threefold.

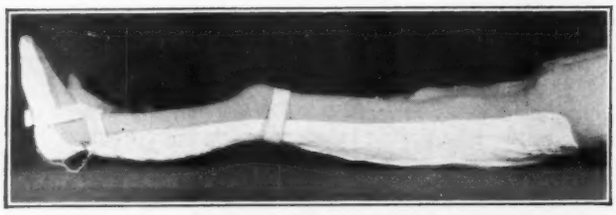

Fig. 1.—Molded spica cast for the hip with adjustable foot plate.

The principle employed by us in the treatment of anterior poliomyelitis is chiefly that of constantly maintaining the physiologic rest position for paralyzed muscles by means of protective supports. As muscle power returns, the weaker of two opposing groups is favored by the protection position; that is, the origin and insertion of the weaker muscles are brought as close as possible without injuring the opposing muscles or producing a permanent deformity by permitting bony or ligamentous changes. At the same time it is desirable that the protected parts may be bathed and given heat and light massage twice or three times a week. The combination of protection and treatment is possible only in a cast which has been bivalved; hence the use of bivalved casts.

The following is a brief description of the technic of applying the molded casts:

The skin is protected from the wet plaster by the use of either thin stockinet or talcum powder. The desired number of splints are held firmly together and thoroughly moistened by drawing them over the surface of the water in a pan. They should not be dropped into the water. A half cast is then made by molding the "specialist plaster splints" (Johnson & Johnson) to the part and holding it in position until it sets. This obviates the necessity of plaster-of-paris bandages. Then, with the plaster still moist, this half cast is removed without the mold being destroyed in any way. The shell is allowed to dry thoroughly with or without the aid of artificial heat. With the use of strips of specialist plaster, the rough edges are then covered and the cast reenforced at the points of greatest strain. To add greater strength to the casts, narrow strips of sheet metal may be molded to the contour of the outer surfaces of the cast and held firmly in place by strips of specialist plaster. When this fresh coat of plaster has been allowed to dry, there may be many rough areas inside and out. The entire cast may be rubbed smooth with a fine grade of sandpaper, obtaining thereby a fairly high polish of the plaster. The cast is now ready to be covered with the highly protective and strengthening coats of cellulose acetate.

The materials[1] used in the cellulose acetate mixture are cellulose acetate (lacquer viscosity 5), dimethyl phthalate A (or "sizing"), and acetone U. S. P. (dimethyl ketone). In preparing the mixture, a 2 quart jar is two-thirds filled with the cellulose acetate flakes. To this is added 3 ounces of the sizing and the jar is then filled with the acetone. The jar is sealed and set aside for three or four hours, and the contents are stirred occasionally. The consistency will be slightly thicker than ordinary paint when it is first made; however, it will be necessary to add more acetone as the mixture is used because the acetone tends to evaporate from the jar as it is opened for use.

With an ordinary paint brush, the cast (which must be thoroughly dry) is painted with the cellulose acetate mixture. Three coats are usually applied, ample time being given—from five to ten minutes—for each coat to dry. Any rough places that appear after drying may be removed with fine sandpaper. It is not advisable to apply the cellulose acetate mixture on days of high atmospheric humidity, as the material will absorb moisture. With the absorption of moisture, the covering turns white and peels off because it does not adhere to the plaster.

The cast is fitted on the patient. It should fit snugly, giving equal pressure over the entire surface of the skin to avoid the occurrence of pressure ulcers. Straps of webbing and buckles are riveted on to the shell in the desired places and the rivet heads are touched with cellulose acetate to smooth the surface. The cast is now water proof, its strength is doubled and its life is trebled.

For adequate protection of muscles in patients convalescing from poliomyelitis, changes in protective supports are frequently needed to meet changes in muscle balance. Ordinary casts are not adjustable to meet these changes without application of entirely new molds. We have therefore incorporated metal with the plaster to make parts of the casts adjustable and eliminate the necessity of constantly changing the molds. Two of these will be described briefly.

Figure 1 shows a molded spica cast for the hip with an adjustable foot plate. In the preparation of the cast, the plaster mold for the foot is made separately and then connected by a metal strip to the cast for the leg. The metal strip is attached to the plaster molds with rivets before the cellulose acetate is applied. The malleable iron bar allows for adjusting the foot in plantar flexion, dorsiflexion, eversion, inversion or combinations of these positions. Adjusting the foot and ankle positions by bending the metal bar eliminates the possibility of distorting the position of the foot.

With close observation and careful checking of the muscle power, contractures are prevented and the equal return of power in opposing muscle groups can be brought about at approximately the same time by constantly adjusting the protective support to favor the weaker group.

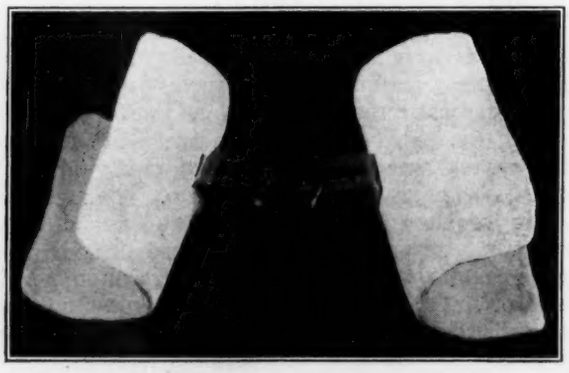

Fig. 2.—Adjustable molded cast for the thigh.

Figure 2 shows an adjustable molded cast for the thigh, used to protect weak hip abductors or adductors. The sliding metal bars between the leg molds are held in any desired position by

1. Cellulose acetate (lacquer viscosity 5): Celanese Corporation of America, 180 Madison Avenue, New York. Dimethyl phthalate A: Kay Fries, 180 Madison Avenue, New York. Acetone, U. S. P.: Any large pharmaceutical firm; in Baltimore, conveniently obtained from Muth Bros. & Co., 25 South Charles Street.

a set screw. This cast may be used advantageously to maintain the frog leg position following reduction of congenitally dislocated hips, facilitating the gradual change from the position of marked abduction to the neutral position.

Protection is important in relation to the small muscles of the hand. To avoid the use of heavy casts, small cuffs have been devised to give maximum protection to isolated muscles with a minimum amount of weight and restriction of motion.

Figure 3 shows a cuff combining the protection for the opponens pollicis and lumbricales. When only the opponens muscles need protection, the lower plaster strip is omitted.

In making the opponens cuff, two strips of 3 or 4 inch specialist plaster are folded lengthwise to a width of about 1 inch or less. The plaster is always folded before it is wet. Pieces of a tongue depressor split lengthwise are held laterally at the index and little fingers, and the strip of plaster is then wrapped around the hand above the metacarpophalangeal joints. The tongue depressor (or similar object) allows enough width so that the finished cuff will slide easily over the knuckles when the cuff is removed. The plaster band around the hand may be allowed to set before the thumb piece is added. For the thumb, two strips of the 3 or 4 inch plaster are folded crosswise and then folded diagonally. This triangular piece is then molded

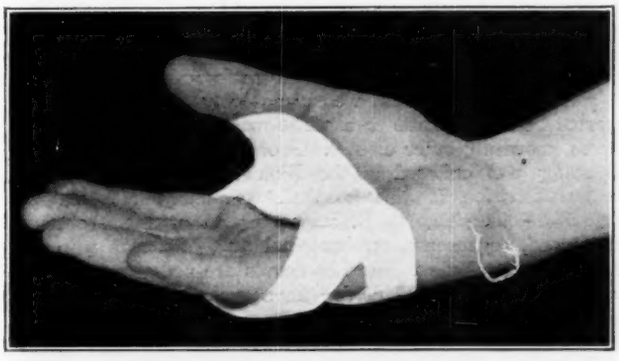

Fig. 3.—Opponens-lumbricales cuff.

as a U under the thumb and held in the desired protection position. The plaster extends only to the distal phalanx (unless the extensor longus pollicis is weak), thus permitting use of the end joint in functional activity. When the lumbricales support is added, the lower band is placed below the metacarpophalangeal joints to prevent any pressure over the knuckles and permit freedom of motion in flexion.

Many other modifications are easily and simply developed. The cuffs are light, thin, water proof and very durable and facilitate the rest and protection treatment of paralyzed muscles.

Greenspring Avenue and Forty-First Street.

A SUGGESTED TEST FOR CORTICAL ADRENAL CARCINOMA

ROBERT T. FRANK, M.D., NEW YORK

In the last few years the attention of the profession has been increasingly directed toward the group of patients classified under the terms of "adrenal cortical syndrome," "pituitary basophilic syndrome," and hirsutes complicated by symptoms resembling these groups. The most characteristic symptoms are general hirsutism, plethora, high blood pressure, abdominal obesity, pink or bluish abdominal striae, amenorrhea and enlargement of the clitoris, and osteoporosis.

In 1934 I[1] reported the presence in high concentration of estrogenic substance in the urine of two patients with advanced and disseminated adrenal cortical carcinoma. Both of these cases came to autopsy.[2] Since then the urines of patients with various diseases showing some of the symptoms just mentioned have been similarly tested. Fifteen gave a negative reaction. A summary of the conditions is given in table 1. Only two further positive reactions were obtained. These occurred in patients who were found to have adrenal cortical carcinoma. In table 2 are shown the positive reactions so far obtained (in four patients), which include both the previous and the present report. The intensity of the reaction is likewise indicated.

TABLE 1.—*Negative Reactions*

Hirsutes, obesity, increased blood pressure, amenorrhea...	♀	6
Hirsutes, obesity, increased blood pressure, amenorrhea, striae, negative intravenous pyelogram, osteoporosis....	♀	1
Obesity, hypertension, striae, operation and autopsy (normal adrenals)	♂	1
Essential hypertension	♀♀	2
Child aged 5½ years, obesity, hypertension 150 mm.....	♀	1
Hypernephroma (with operation)	♂	1
Adrenal medullary paraganglioma (with operation).....	♀	1
Adrenal cortical adenoma (with operation).....	♀♀	1
Adrenal hyperplasia (with operation)	♀	1

As further controls, the urines of more than 500 other patients in which the bio-assay for estrogenic substance was performed showed no such high concentration. The maximum even in the cases of menorrhagia and metrorrhagia in which our studies[3] have shown an excessive ovarian function have not shown a concentration of 1 mouse unit of estrogenic substance in less than 3 cc. of urine. Moreover, among the number of adrenal tumors such as adrenal cortical adenoma, adrenal medullary paraganglioma and adrenal hyperplasia, the elevation of estrogenic substance never reached this level.

From these observations it seems likely that adrenal cortical carcinoma alone of adrenal tumors increases the amount of estrogenic substance in the urine to as high as from 1,000 to 10,000 mouse units per liter, with a negative pregnancy test. These observations are therefore again presented as a possible help in diagnosis. The rarity of the condition makes it impossible for any one investigator to obtain a large number of observations.

The performance of the test is extremely simple. A fresh specimen of urine is obtained. Of this a total of 1 and 2 cc. is injected subcutaneously in five divided doses spread over forty-eight hours into adult castrated mice (0.2 cc. × 5; 0.4 cc. × 5). After completion of the injections, the vaginal spreads are examined three times daily for three succeeding

TABLE 2.—*Positive Reactions*

	No. of Cases	Cc. of Urine Giving Positive Test
*Adrenal cortical carcinoma (previous report) (autopsies)	2	0.075 0.2
†Adrenal cortical carcinoma without symptoms (operation)	1	1.
‡Adrenal cortical carcinoma (adrenal syndrome) (operation and autopsy)	1	0.1

* Reference 2.
† Patient operated on by Dr. Richard Lewisohn; no endocrine symptoms; well two years.
‡ Patient operated on by Dr. Edwin Beer; typical adrenal cortical syndrome; early cortical carcinoma breaking through capsule. Died two months after operation. Autopsy.

days. A positive estrogenic reaction manifests itself by the change of the vaginal spreads from leukocytes to cornified epithelial cells. In every case the urine must likewise be tested either by the Friedman or by the Aschheim-Zondek technic. The pregnancy test must be negative if any conclusions are to be drawn.

A positive mouse reaction in quantities of 1 and 2 cc. of urine, which corresponds to at least 500 to 1,000 mouse units of estrogenic substance per liter, should be considered strong evidence in favor of adrenal carcinoma. If the test is positive in these quantities, it should be performed with smaller quantities until the lowest positive level has been reached.

1035 Park Avenue.

From the Laboratories of the Mount Sinai Hospital.

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SUIPESTIFER SEPTICEMIA AND MENINGITIS COMPLICATING MENINGOCOCCIC SEPTICEMIA AND MENINGOCOCCIC MENINGITIS

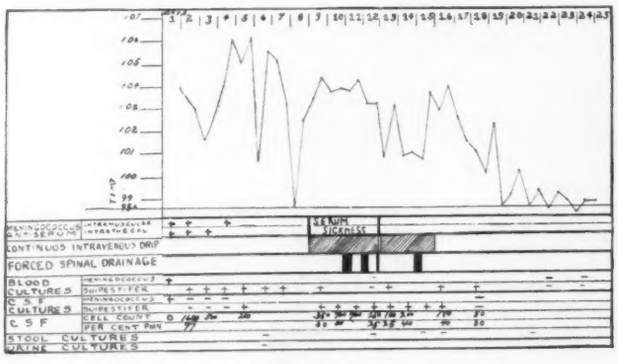
M. M. RAVITCH, M.D., AND J. A. WASHINGTON, M.D., BALTIMORE

Since 1931 there have been at the Harriet Lane Home twenty-eight cases of infection with the suipestifer bacillus. Almost all the patients were Negro children. Only three deaths occurred. The source of the infection is yet unknown, and it is interesting that several of the patients were nursing infants. Most of the cases (more than three fourths) were instances of primary infection with this organism, while in a few a suipestifer septicemia followed some other infection, most often pneumonia. The commonest picture was that of a paratyphoid-like fever. Complications most commonly seen were pyarthroses and suppurative and nonsuppurative osteomyelitis. Thrombocytopenia and purpura occurred twice. Specific symptoms were absent. Diagnosis was made usually by blood culture. Specific agglutinins for the organism are developed by most patients. The case herewith reported is of particular interest in that it presents a rare manifestation of the suipestifer infection.

REPORT OF CASE

C. H., a Negro girl, aged 4 years, was admitted to the Harriet Lane Home Jan. 29, 1936, with a meningococcic infection seven hours after the appearance of the first symptom. The previous evening the mother had entered a hospital with proved meningococcic meningitis.

On admission the sensorium was clear, the neck was supple, the Kernig sign was questionable, the reflexes were hyperactive,



Temperature and treatment chart in case reported.

and typical fresh petechiae were seen on the arms, trunk and palpebral conjunctivae. The temperature was 105.0 F. Lumbar puncture yielded a clear, Pandy-negative fluid containing only one cell per cubic millimeter. No organisms were seen in the smear. Antimeningococcus serum was given intrathecally. To this can be attributed the subsequent appearance, within a few hours, of cervical rigidity, retraction of the head and a positive Kernig sign. Culture of the cerebrospinal fluid grew meningococci by the succeeding day. The initial blood culture also grew meningococci. Though no history of diarrhea was obtained, the child had two diarrheal stools the first afternoon. The next morning the spinal fluid was cloudy, and although it contained 1,600 cells per cubic millimeter, 97 per cent of which were polymorphonuclears, it proved sterile on culture. A second blood culture, taken that evening, twenty-four hours after admission, instead of the meningococcus, yielded Salmonella suipestifer in pure culture. The admission cultures were still on hand and still showed undoubted meningococci. Furthermore, transplants of these original cultures, sent according to the regular practice at the Harriet Lane Home to the National Institute of Health in Washington, D. C., were identified as cultures of meningococcus group I. In the following sixteen days, ten of eleven blood cultures taken were positive for suipestifer, one taken in the middle of this period being reported sterile.

On the third day lumbar puncture was attempted on two occasions, each time resulting in the withdrawal of bloody fluid. Cultures of the fluid were sterile. On the fourth day lumbar puncture again yielded a bloody fluid, which this time contained the suipestifer organism in pure culture. In the next eleven days on each of the nine occasions when culture of the cerebrospinal fluid was made, the suipestifer organism was obtained.

It is interesting that the white blood cell count, 30,500 on admission, had fallen to 4,500 on the sixth day, and the granulocytes had fallen from 93 to 74 per cent. This is in accordance with the observation of mild granulocytopenia as a common event in suipestifer infection.

Antimeningococcus serum was given intrathecally and intramuscularly the first four days. The patient was profoundly prostrated, had a high irregular fever, and was constantly in a most desperate condition. She was given large blood transfusions, repeated lumbar punctures, and finally forced spinal drainage. In brief, she overcame violent serum sickness, thrombophlebitis, pneumonia and myocardial failure with gallop rhythm and recovered. A temporary lumbar subarachnoid block also occurred. The child was discharged, entirely well, forty-eight days after admission to the hospital.

The agglutinations of the blood against Salmonella suipestifer group II were as follows: twenty-first day 1:80, thirty-third day 1:320, forty-second day 1:2,560, seventy-fifth day 1:1,280, one hundred and sixty-fifth day 1:1,280. Cultures of stool and urine were negative, as has been the usual experience in the suipestifer infections in the Harriet Lane Home.

COMMENT

In an attempt to probe the literature for other certain cases of suipestifer meningitis we found only three. Kuttner[1] reported fatal meningitis in a white man, uncomplicated so far as was known by other disease. From the spinal fluid Bacillus suipestifer was cultured in the Biological Laboratory of the Medical Division of this hospital. Similarly, Materna and Januschke[2] identified as B. suipestifer an organism obtained from blood, organs and cerebrospinal fluid of a man who died of purulent meningitis. Further details are not given by them. Recently Boycott and McNee[3] have reported a fatal case of suipestifer infection in an English woman in whom the meningitis was discovered at postmortem examination. Death occurred after a two months illness, marked by chills and fever, bone and joint pains, abdominal rigidity and mental confusion. B. suipestifer was cultured from the blood in life, and after death from the blood, spleen and gallbladder as well as from the meninges, which showed a purulent exudate over the vertex.

Although more than eighteen other cases of meningitis due to a gram-negative, motile, bipolar staining rod were found, the reports date from the postwar years and all depend on the identification of Neukirch's[4] bacillus Erzindjan with the Gläser-Voldagsen organism and the acceptance of that organism in turn as a suipestifer strain.[5]

SUMMARY

A 4 year old Negro girl with meningococcic septicemia and meningococcic meningitis had only meningococci in the blood on the first day of disease and Salmonella suipestifer alone in the blood on the second day. The latter infection of the blood stream persisted at least fifteen days. Possibly dependent on

From the Harriet Lane Home of the Johns Hopkins Hospital and the Department of Pediatrics, Johns Hopkins University School of Medicine.

1. Kuttner, A. G., and Zepp, H. D.: Paratyphoid-like Fever in Children Due to the Salmonella Suipestifer Group, Bull. Johns Hopkins Hosp. **51**: 373 (Dec.) 1932.

2. Materna, A., and Januschke, E.: Ein Beitrag zu der Frage den ätiologischen Beziehungen zwischen der bazillären Schweinepest und den Paratyphus B des Menschen, Ztschr. f. Fleisch- u. Milchhyg. **35**: 298, 1925.

3. Boycott, J., and McNee, J. W.: Human Infection with the American Hog-Cholera Bacillus, Lancet **2**: 741 (Sept. 26) 1936.

4. Neukirch, P.: Ueber Paratyphusbakterien in Blute bei ruhrähnlichen Erkrankungen in der Türkei, Berlin. klin. Wchnschr. **54**: 360, 1917; Ueber menschliche Erkrangungen durch Bazillen der Gläser-Voldagsengruppe in der Türkei, Ztschr. f. Hyg. u. Infektionskr. **85**: 103, 1918.

5. Because of the uncertainty the cases are not cited, although the references to them are given. The outcome in these cases was uniformly fatal:

Hesse, E.: Zur Kenntnis der chirurgischen Komplikationen und Nachkrankheiten des Fleckfiebers, Rückfallfiebers und des Paratyphus Erzindjan, Arch. f. klin. Chir. **128**: 739, 1924; Die chirurgische Bedeutung des Paratyphus N (Erzindjan)—einer Mischinfektion des Rekurrens aus der Glaeser-Voldagsen Gruppe, München. med. Wchnschr. **71**: 359, 1924.

Woronina, E. V.: A New Typhoid-like Disease and Its Causative Agent, Xubanski Nauchno-Meditsinski Vestnik numbers 5-8, Sept.-Dec. 1921, pp. 235-246.

gross contamination of the cerebrospinal fluid with blood in the course of lumbar puncture, suipestifer meningitis developed and lasted for twelve days. The uniquely benign outcome of the suipestifer meningitis can perhaps be attributed to the strong antibacterial meningeal reaction set up by the meningococcic meningitis and intrathecal serum treatment. The low spinal fluid cell count with mononuclear predominance is noteworthy.

Special Clinical Article

CARDIOVASCULAR SYPHILIS

CLINICAL LECTURE AT ATLANTIC CITY SESSION

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Involvement of the cardiovascular system accounts for a large group of persons who suffer the most disabling effects of latent syphilis. Is it any wonder then that particular attention should be directed not only to the control of syphilis but equally to prevention of the devastating effects of cardiovascular disease in persons who have acquired the infection?

Essentially, a consideration of cardiovascular syphilis means a discussion of syphilitic aortitis and its complications, such as aortic insufficiency, aneurysm, narrowing of the ostia of the coronary arteries and, rarely, involvement of the heart muscle. Since all these conditions are latent manifestations of an infection acquired many years previously, naturally they are most frequently unsuspected and are unrecognized before it is too late for treatment to be of curative value.

Spirochaeta pallida, the causative organism, is distributed from the primary lesion through the blood stream to all parts of the body. Infection undoubtedly takes place in the aorta, as well as in other organs of the body, rather early in the disease. When the aorta is so invaded there may develop, rather rarely, an acute inflammatory reaction in the aorta with marked degenerative changes causing death within six or eight months after the primary lesion. One case was observed in our clinic in which a gummatous lesion developed in the cusp of an aortic valve, producing rupture and death within eight months after the initial infection. However, such cases are exceptional, and as a general rule there is a latent period of from ten to twenty years before the infected person manifests any symptoms or signs referable to his cardiovascular system.

FREQUENCY

Syphilitic aortitis, from the standpoint of the pathologist, is a disease recognized far more frequently at autopsy than in the clinic. Its incidence in different parts of the country varies with the character of the population. Since syphilitic infection is far more prevalent in Negroes than in other races and since it occurs more frequently among the ignorant and the indigent, it naturally follows that aortitis is most commonly found in these groups, although the fact that syphilis is no respecter of persons must not be forgotten. From statistical data collected by Turner [1] it would seem that approximately 10 per cent of all patients with latent syphilis will have demonstrable clinical evidence of cardiovascular involvement. In a series of 6,253 cases of syphilis in a late stage collected by the Cooperative Clinical Group,[2] approximately 619, or 10 per cent, of the patients had cardiovascular syphilis on admission or acquired it later. The wonder is that a far greater number did not give clinical manifestations. Warthin [3] and his associates have observed at autopsy that the aorta is involved, either macroscopically or microscopically, in approximately 90 per cent of persons with latent syphilis. The age group most frequently affected is that between the ages of 30 and 55 years, although cases may occur earlier and some even later. However, it should constantly be remembered that every person who has syphilis is an excellent candidate for cardiovascular involvement.

PATHOLOGY

Pathologically, aortitis is recognized as the late lesion which produces disability. The aorta is invaded by means of the lymphatics accompanying the vasa vasorum; the process begins in the adventitia and is followed later by degenerative changes occurring in the media. Since the ascending aorta and the aortic arch are most bountifully supplied with lymphatics, it is natural that these areas should be the ones most frequently involved. The degenerative process usually begins just above the aortic valves and extends either upward or downward. As the infection progresses, there is marked destruction of the elastic and connective tissues composing the media, resulting in focal degenerative areas which may remain small or may be fairly extensive. Along with this change there is reparative fibrosis, resulting in marked scarring and producing considerable deformity of the aorta. As the lesion progresses the intima becomes thickened by a proliferation of connective tissue, so that the inner surface of the aorta is thrown into ridges, which extend up and down its long axis, and resembles very much the bark of a tree. With long standing infection marked scarring occurs, together with a weakening of the aortic wall. Occasionally one sees atheromatous changes associated with it. As a result of the progression of this pathologic process, several complications may develop which add to its seriousness.

Syphilitic aortic insufficiency results when there is a downward extension of the aortitis involving the commissures of the semilunar valves. The commissures are widened, causing a separation of the valves and resulting in insufficiency. Sometimes this lesion is the only visible one of syphilitic involvement. Occasionally a small gumma involving the leaflet of the valve will occur. Frequently the syphilitic process may extend into the valve itself, producing insufficiency.

Syphilitic aortitis may cause extensive narrowing of the orifices of the coronary arteries, at times almost obliterating them. I have frequently observed both coronary ostia to be so small that they would admit only a bristle; sometimes one orifice is involved without the other. As a result of the partial or complete occlusion of the coronary ostia, patients frequently have attacks of angina pectoris, suffer paroxysmal dyspnea or even die suddenly.

Aneurysm results when the medial coat of the aorta becomes so completely destroyed as to withstand no longer the intra-aortic pressure. The involved aortic

Read in the General Scientific Meetings at the Eighty-Eighth Annual Session of the American Medical Association, Atlantic City, N. J., June 8, 1937.

1. Turner, T. B.: The Race and Sex Distribution of the Lesions of Syphilis in 10,000 Cases, Bull. Johns Hopkins Hosp. **46**: 159 (Feb.) 1930.

2. Cole, Harold N., and Usilton, Lida J.: Cooperative Clinical Studies in the Treatment of Syphilis: Cardiovascular Syphilis, Arch. Int. Med. **57**: 893, 910 and 919 (May) 1936.

3. Warthin, A. S.: The Lesions of Latent Syphilis, South. M. J. **24**: 273 (April) 1931.

wall begins to give or stretch. If the syphilitic process is diffuse, general aortic dilatation results and a fusiform aneurysm is formed, but if the medial degeneration is localized over a smaller area, a saccular aneurysm results. Saccular aneurysms vary in size from those of only a few centimeters in diameter to those that almost completely fill the upper part of the chest. The coronary arteries may be involved after leaving the aorta, athough such involvement is rare according to my experience.

Involvement of the myocardium does not appear with anything like the frequency of aortic involvement. Three types of lesions in the myocardium are distinguished: First, a localized gumma may occur in any part of the heart. It is seldom recognized and rarely gives any symptoms of its presence unless it occurs in an area involving the conducting system. In such a location it will cause varying degrees of heart block. Second, a diffuse generalized acute inflammatory condition may be observed. It was described first by Warthin [4] and later by me.[5] It is characterized by numerous well defined translucent areas scattered throughout the myocardium, chiefly in the ventricles. The heart muscle in the involved areas is completely destroyed, and patients with this type of syphilitic infection usually die suddenly. Third, the type of lesion which occurs most frequently in younger persons is the fibrotic type, in which the heart muscle, in the absence of gross coronary obstruction, is replaced in part by an overgrowth of connective tissue, evidently an attempt at healing. The integrity of the heart muscle is so completely destroyed that it is no longer able to act efficiently. The ventricles dilate slowly but gradually, compensation is lost, the heart is never able to become again a perfectly functioning organ and the patient dies of progressive cardiac insufficiency.

RECOGNITION OF CARDIOVASCULAR SYPHILIS

Every person who has had syphilis, whether treated adequately, indifferently or not at all, should be suspected of having involvement of the cardiovascular system. Of those who have had no treatment or of those who have had inadequate treatment, approximately 25 per cent will show a variable degree of aortitis. In those who were seen early and who have been treated adequately, the aortic involvement occurs very, very rarely.

In the detection of syphilitic aortitis, too much reliance must not be placed on the presence of a positive Wassermann reaction or on any other serologic test for syphilis. It is well known that from 10 to 20 per cent of persons with latent cardiovascular syphilis will give a negative serologic reaction. It is of the utmost importance to be able to recognize aortitis before the development of its complications. Admittedly this is extremely difficult to do, yet it can be done with a fair degree of accuracy provided the physician will first suspect the existence of the disease and then take a sufficient amount of time to investigate each patient thoroughly. A good general rule to follow is first to suspect its presence and then to prove that it does not exist before dismissing the diagnosis. Of great help in making the diagnosis is the history given by the patient. In the early stage of the disease there is usually no complaint, although, when the patient is closely questioned, mention is made of oppression in the chest, usually referred beneath the upper part of the sternum, noticed most frequently after exercise or any excitement and lasting only a short time. This type of pain does not radiate and frequently is accompanied by a slight hacking cough or a desire to take a deep breath. When there is marked thickening about the ostia of the coronary arteries, more severe and radiating pain occurs, that typical of angina pectoris. In the absence of pain, a history may be obtained of decreasing ability to take exercise without becoming short winded or of attacks of paroxysmal dyspnea, coming mostly at night during sleep.

Physical examination may reveal surprisingly little, but one may find a slight increase in the retromanubrial area of dulness and occasionally a loud metallic tambour-like aortic closure. Fluoroscopic examination of the chest may show nothing, or it may show slight dilatation of either the ascending aorta or the aortic arch. A patient who has not had rheumatic heart disease and does not have hypertension, but who does give a history of syphilitic infection and presents any three of the aforementioned symptoms or signs, even in the absence of a positive Wassermann reaction, should receive the benefits of antisyphilitic treatment.

TREATMENT

If every person who acquires syphilis could receive the benefits of adequate treatment, such as has been outlined by the Cooperative Clinical Group,[6] there would be few patients with cardiovascular manifestations of latent syphilis. Moore [7] said: "In a large series of patients admitted with primary and secondary syphilis and followed for a considerable number of years thereafter, none who have received as much as three courses of arsphenamine plus interim heavy metals subsequently developed clinically recognizable cardiovascular syphilis." The best treatment then is to prevent the development. Until such prevention, which I hope is not far distant, is accomplished, it is necessary to consider what line of procedure will be most beneficial for the patient with this type of latent syphilis.

Until a few years ago it was a controversial question whether patients with aortitis, aortic insufficiency or aneurysm should receive antisyphilitic treatment at all. Such a point of view arose in the minds of practitioners when they observed that this type of patient frequently became progressively worse when treated vigorously with arsenicals. Many physicians can remember distressing results that followed the administration of arsenicals to patients with aortic insufficiency or with aneurysm. Sudden death was not unusual, rapid progress of the disabling condition was frequently observed and a good many patients without treatment lived longer than those with specific treatment. Since then better methods have been outlined which promise more to the patient in the relief of symptoms, the prolongation of life and the prevention of complications, than was possible ten years ago.

A patient with cardiovascular syphilis should be subjected to the usual forms of treatment that are prescribed for any patient with heart disease; that is, his habits and mode of living should receive attention, the amount and character of exercise should be discussed and other general hygienic measures should be taken for his comfort. As to specific treatment, patients may be divided into two groups, those who have a normally

4. Warthin, A. S.: Sudden Death Due to Exacerbation of Latent Syphilitic Myocarditis, Am. Heart J. **1**: 1 (Oct.) 1925.
5. Paullin, J. E.: Syphilitic Myocarditis, South. M. J. **23**: 988 (Nov.) 1930.
6. Stokes, J. H.; Cole, H. N.; Moore, J. E., and Others: Standard Treatment Procedure in Early Syphilis, J. A. M. A. **102**: 1267 (April 21) 1934.
7. Moore, J. E.: The Modern Treatment of Syphilis, Springfield, Ill., Charles C. Thomas, 1933.

functioning myocardium and those who have congestive heart failure. In the latter group the congestive failure must receive immediate attention, and the remedies employed in treating patients who have this condition as the result of any other cause are freely utilized. When the pathologic process has advanced so far as to cause congestive failure, the patient will profit less from antisyphilitic treatment.

In planning any form of treatment for the patient with cardiovascular syphilis, it is of the utmost importance to be sure that the measures employed will do no harm. In the wards of the Emory University Division of Grady Hospital and in the outpatient department under the supervision of Dr. L. M. Blackford, one sees many patients with aortic insufficiency and aneurysm who have never had any antisyphilitic treatment, a few who have had indifferent treatment and none who have had adequate treatment. Many of these patients are critically ill when first seen. As a result of this experience over a number of years, these patients are treated from four to six months with potassium iodide by mouth and intramuscular injections, at weekly intervals, of either a mercury or a bismuth compound. Arsphenamine is not given in any form whatsoever until the patient has had the preliminary treatment. At the end of this period, according to the nature of the lesion and the condition of the patient, one may begin the administration of small doses of neoarsphenamine, starting with 0.1 Gm. and never exceeding 0.3 Gm. In cases of uncomplicated aortitis, larger doses of neoarsphenamine may be given during the second period of intravenous medication, provided there is no evidence of involvement of the coronary ostia. To obtain the most satisfactory results, every patient with cardiovascular syphilis should receive continuous weekly treatments for at least eighteen months.

If the patient when first seen has cardiovascular syphilis and congestive heart failure, antisyphilitic treatment must be undertaken with the greatest care. Potassium iodide is given by mouth as soon as possible, and smaller doses of the heavy metals at weekly intervals. In the Grady Hospital clinic, because of the type of patients who have the disease and their general inherent characteristics, it is impossible to give accurate statistical data on the end results of this type of therapy. However, statistical data collected by the Cooperative Clinical Group [6] in a large series of cases of uncomplicated syphilitic aortitis show that the average duration of life for untreated patients was thirty-four months, for those adequately treated eighty-five months and for those inadequately treated fifty-six months. Of those adequately treated, 63 per cent were living and symptom free. The life of patients with aortic insufficiency who received adequate treatment was prolonged from forty to fifty-five months; for patients with aneurysm who received adequate treatment, the average duration of life was increased from thirty-seven to seventy-five months.

My experience leads me to believe that as a result of treatment many patients are made symptom free and live longer than they otherwise would.

SUMMARY

1. Involvement of the cardiovascular system occurs in approximately 10 per cent of patients with latent syphilis.

2. Beginning as aortitis, it may lead to aortic insufficiency, aneurysm, narrowing or occlusion of the coronary ostia or myocarditis.

3. Adequate treatment of early syphilis will prevent cardiovascular involvement in practically all patients.

4. The early recognition of aortitis before complications occur and the institution of adequate treatment prolong life and relieve symptoms.

5. Patients with cardiovascular syphilis should receive for the first four to six months potassium iodide by mouth and intramuscular injections of either a mercury or a bismuth compound; at the end of this period small doses of neoarsphenamine may be given.

6. Treatment should be continued at weekly intervals for at least eighteen months to accomplish the best results.

1010 Medical Arts Building.

Council on Pharmacy and Chemistry

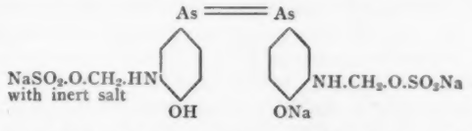
PRELIMINARY REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING PRELIMINARY REPORT.

PAUL NICHOLAS LEECH, Secretary.

TRISODARSEN (FORMERLY TRIARSEN)

Under the name "Triarsen," the Abbott Laboratories presented for the Council's consideration a brand of Trisodium Arsphenamine Sulfonate, with the following probable formula:



The firm stated that the product was not being marketed but was being supplied to investigators as "Preparation #1529." Subsequently, at the suggestion of the Council, the firm adopted the name "Trisodarsen" for the product, which is not being actively marketed but is supplied to investigators.

Trisodarsen is proposed for use in the treatment of syphilis in the same manner as neoarsphenamine. It is stated to be considerably more stable in air than neoarsphenamine and sulfarsphenamine. The maximum tolerated dose, administered intravenously, for rats is reported to lie between 500 and 600 mg. per kilogram of body weight. The maximum tolerated dose for neoarsphenamine is between 240 and 400 mg. per kilogram.

TABLE 1.—*Average Time and Treatment Necessary for Reversal of Blood Wassermann Reaction to Negative*

	Cases	Average Total Dosage, Grams	Average No. of Injections	Average No. of Days
Arsphenamine	103	3.9	9.7	75
Neoarsphenamine..	110	7.1	13.4	99
#1529	40	4.18	8.0	58.7

It appears that single doses of 25 mg. of Trisodarsen per kilogram cure experimental rabbit syphilis. The firm states that the average dose for man is from 0.45 to 0.6 Gm.; for women, from 0.3 to 0.5 and 0.6 Gm. is recommended, administered intravenously.

The firm informed the Council that Dr. John H. Stokes and Herman Beerman had been working on the product about three and three-fourths years. The total number of cases treated was 165 and the number of injections given 2,675; the total number of injections per patient was from one to fifty-five. Eighty-two per cent of forty cases with blood serologic reversal to negative were reported to be reversed by the tenth injection of the drug.

With seropositive primaries, the time in days for reversal to negative was reported as somewhat longer than with arsphenamine and shorter than with neoarsphenamine. With cases of secondary syphilis the time for reversal to negative was shorter

than with arsphenamine and much shorter than with neoarsphenamine. In both groups the number of cases studied was comparatively small.

The firm presented Moore's condensation of the figures of Cannon and Karelitz as in table 1, adding data on preparation #1529.

For healing of lesions of early syphilis, the firm presented Moore's condensation of the earlier data of Cannon and to it added for comparison preparation #1529 (table 2).

TABLE 2.—*Average Time and Treatment Necessary for Disappearance of Visible Lesions*

Cases	Average Total Dosage, Grams	Average No. of Injections	Average No. of Days
Arsphenamine (32)	1.3	2.7	14
Neoarsphenamine (61)	3.8	5.8	23
#1529 alone (53)	1.35	2.7	14.6
#1529 and bismuth (62).....	1.05	2.66	15.0

Disappearance of Spirochetes.—According to data presented by the firm the organisms in primary lesions with 0.3 Gm. of Trisodarsen disappear in from twenty-four to ninety-six hours and with 0.6 Gm. in from twenty-four to thirty-six hours. With secondary syphilis, using 0.3 Gm., in more than forty-eight to seventy-two hours; and using 0.6 Gm., more than forty-eight hours and less than ninety hours.

Reactions.—A drug may be able to satisfy all the requirements of potency and yet not be free from reactions. According to information supplied by the firm there seemed to be no particular effect from Trisodarsen on the kidneys or blood in the patients studied. However, seventy-five of the 165 patients treated had one or more reactions. Nausea and vomiting was seen in thirty-three cases and was so severe that it was necessary to stop the drug in twelve cases, 8 per cent of the whole. Moreover, nitritoid reactions were observed in thirteen cases, 8 per cent of the whole. There was also one mild case of dermatitis; one moderate case and two severe cases of dermatitis were observed. Various other reactions in smaller numbers were observed. Cole and his workers in 1931 found that, in 1,212 cases with 78,350 injections, reactions were observed with 15 per cent of patients treated with arsphenamine and 16.7 per cent treated with neoarsphenamine. With #1529 this rose to 45.5 per cent. Cutaneous reactions with #1529 were one in 1,338 injections, as against Moore's finding of dermatitis—one in 1,857 with arsphenamine and one in 5,367 with neoarsphenamine. The firm states that recent lots of the drug show lessened incidence of reactions.

Chemotherapeutic Consideration.—In rabbit syphilis Trisodarsen in a dosage of 0.025 Gm. per kilogram gave 100 per cent cures. The firm stated that the maximum tolerated dose for rats lies between 500 and 600 mg. Trisodium arsphenamine sulfonate is less toxic than neoarsphenamine. This is referred to later.

The Abbott Laboratories apparently present sufficient experimental evidence on arsenicals to give an idea of the value of Triodarsen for syphilis in rabbits. The firm states that it is apparently less toxic than neoarsphenamine. Unfortunately, animal experiments cannot always be transferred to man and this seems to be particularly true with preparation #1529. Probably the prime requisite of any antisyphilitic agent is first its freedom from reactions. With #1529 the investigators themselves state that they are three times as frequent as those observed after arsphenamine and neoarsphenamine. Moreover, while the drug has been studied by two expert syphilologists, Stokes and Beerman, the material thus far (at the date of the referee's first report to the Council) comprises but 165 cases and 2,675 injections.

There is no question that the development of more antisyphilitic agents is desirable. They must be, however, both potent and safe. If they are no more potent than agents now available, certainly much will depend on their relative safety.

As a result of its first consideration, the Council felt that by all of these criteria Trisodarsen, though promising; is not yet ready for general use. The Abbott Laboratories was informed of the Council's belief that a preliminary report dealing with such an apparently toxic product would be unwise. The firm was further informed that, as long as marketing of the product was held in abeyance, any report by the Council would also be held in abeyance, pending further investigation specially along the lines of the toxicity of the product.

Subsequently the firm submitted a later paper by Drs. Stokes and Beerman, reviewing a total of 189 cases treated with 3,009 injections. This was transmitted to the Council for its consideration only in part, the report in its entirety having been submitted to the *Archives of Dermatology and Syphilology* for publication. The firm submitted this material in the hope that the additional data would justify a preliminary report by the Council.

The Council's referee examined this portion of the report by Drs. Stokes and Beerman on the drug Trisodarsen, which has been investigated by a single observer on a fellowship grant for four years. He found that the drug apparently has an animal chemotherapeutic index of 18 and, as used on 189 patients with 3,009 injections, seemed to give as satisfactory results from the standpoint of its spirillicide effect as other arsenicals.

The reaction incidence of the drug, as shown by these further clinical investigations in comparison with other arsenicals, indicates that it produces as little reaction of the immediate or mild type as arsphenamine, neoarsphenamine and mapharsen. It is perhaps somewhat more reaction producing than neoarsphenamine when the latter is used under the best technical administration. It is suggested that, like sulfarsphenamine, Trisodarsen may produce more dermatitis than neoarsphenamine. This requires suspended judgment.

Herxheimer effects are apparently rare. No injuries to special sense organs have been noted. In rate of healing of primary and secondary lesions, Trisodarsen compares favorably with other arsenical preparations and seems to have a favorable effect on the blood serologic tests in early syphilis. Moreover, the incidence of relapse of a clinical and serologic type is low and would compare well with figures for continuous treatment with other preparations.

Investigators admit that clinical examination of Trisodarsen is incomplete, as its use has been confined for the present to early syphilis, and no report has been attempted on latent cardiovascular, prenatal and neurosyphilis.

In view of the further clinical studies, the Council voted to postpone further consideration of Trisodarsen to await the availability of more corroborative evidence and authorized publication of the foregoing preliminary report.

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

VIOSTEROL (A. R. P. I. PROCESS) IN OIL

Under the name Viosterol (A. R. P. I. Process) in Oil, American Research Products, Inc., a branch of General Mills, Inc., markets a solution in oil of ergosterol activated by the action of low speed electrons produced by suitable controlled electrical means. The finished product is adjusted to contain not less than 10,000 U. S. P. units of vitamin D per gram. The firm presented satisfactory evidence of the clinical efficacy of the product. In addition the firm presented reports of comparative animal feeding tests of massive doses of vitamin D which show no differences in toxicity between preparations containing crystalline vitamin D_2, Viosterol (A. R. P. I. Process) and Viosterol produced by the Steenbock process. While these results do not prove that vitamin D is the same chemical substance in the three products, taken together with the clinical evidence already presented the results indicate that the antirachitic effect of Viosterol (A. R. P. I. Process) in Oil in therapeutic doses is the same as that of ergosterol otherwise activated in oil. The firm has signified its intention of carrying out further chemical investigations of the product, which will be considered by the Council.

The Council has recently revised its definition of viosterol to include products activated by other than ultraviolet irradiation. This therefore makes Viosterol (A. R. P. I. Process) in Oil eligible for acceptance. The firm, however, does not market the product as such to physicians but sells the prepara-

tion to concerns for incorporation in other products. Other firms have now submitted products containing Viosterol (A. R. P. I. Process) in Oil for the Council's consideration.

The Council recognizes Viosterol (A. R. P. I. Process) in Oil acceptable as an ingredient of otherwise acceptable marketed products in which it is incorporated for its antirachitic effect.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION AND WILL BE LISTED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED.

FRANKLIN C. BING, Secretary.

SQUIBB YEAST TABLETS

(DRIED BREWERS' YEAST AND MALTED WHEAT GERM EXTRACT)

Manufacturer.—E. R. Squibb & Sons, New Brunswick, N. J.

Description.—Dried brewers' yeast and malted wheat germ extract (essentially maltose, dextrines and "starch intermediate products") in tablet form.

Manufacture.—A strain of brewers' yeast high in vitamins B and G is grown on specially prepared hop-free wort containing sugars, grain extractives and nutrient salts, centrifugated, washed several times and spray dried. The resulting powder is mixed with malted wheat germ extract (Squibb Vitavose, THE JOURNAL, Aug. 6, 1932, p. 477) and compressed into tablets.

Analysis (submitted by manufacturer).—Moisture 4.0%, ash 6.5%, protein (N × 6.25) 42.0%, fat (ether extract) 1.4%, crude fiber 0.0%, carbohydrates (by difference) 46.1%.

Calories.—3.7 per gram; 105 per ounce.

Vitamins.—Biologic assay shows a potency of 50 International units of vitamin B_1 and 20 Sherman units of vitamin G per gram.

CHALLENGER BRAND EVAPORATED MILK

Distributor.—Sewell's United Stores, Salt Lake City.

Packer.—Page Milk Company, Merrill, Wis.

Description.—Unsweetened, sterilized evaporated milk, the same as Page Evaporated Milk (THE JOURNAL, May 30, 1931, p. 1872).

BLAIR'S BEST FLOUR PHOSPHATE ADDED

Manufacturer.—Blair Milling Company, Atchison, Kan.

Description.—Bleached red winter wheat containing 0.5 per cent monocalcium phosphate.

Manufacture.—Selected red winter wheat is cleaned, scoured, tempered and milled by essentially the same procedure as described in THE JOURNAL, June 18, 1932, page 2210. Chosen flour streams are blended and bleached with nitrogen trichloride (one-ninth ounce per 196 pounds) and with a mixture of benzoyl peroxide and calcium phosphate (1 pound to 50 barrels of flour).

Analysis (submitted by manufacturer).—Moisture 13.0%, total solids 87.0%, total ash 0.9%, fat (ether extract) 1.0%, protein (N × 5.7) 9.3%, monocalcium phosphate 0.5%, crude fiber 0.2%, carbohydrates other than crude fiber (by difference) 76.1%.

Calories.—3.5 per gram; 99 per ounce.

OLAC

Manufacturer.—Mead Johnson and Company, Evansville, Ind.

Description.—A spray-dried, pasteurized, homogenized mixture of skim milk, Dextri-Maltose, olive oil, calcium caseinate, and halibut liver oil.

Manufacture.—Skim milk from tuberculin tested cows is mixed in formula proportions with Dextri-Maltose and calcium caseinate. The mixture is pasteurized, cooled, mixed with formula proportions of olive and halibut liver oils, homogenized under 2,500 pounds pressure, spray dried, and packed in sterilized cans hermetically sealed under nitrogen.

Analysis (submitted by manufacturer).—Moisture 1.0%, total solids 99.0%, ash 3.5%, fat (ether extract) 18.6%, protein (N × 6.38) 23.5%, crude fiber 0.0%, carbohydrates other than crude fiber (by difference) 53.4%.

Calories.—4.8 per gram; 136 per ounce.

Vitamins.—The vitamin A content of Olac (furnished by halibut liver oil) is approximately 1,400 U. S. P. units per ounce powder. Other vitamins are present as they occur in skim milk powder.

Claims of Manufacturer.—A proprietary food designed for the feeding of premature and new-born infants, particularly those deprived of breast milk, under the direction of a physician.

(1) ANN PAGE SPARKLE VANILLA ICE CREAM DESSERT POWDER
(2) ANN PAGE SPARKLE CHOCOLATE FLAVORED ICE CREAM DESSERT POWDER
(3) ANN PAGE SPARKLE CHOCOLATE FLAVORED PUDDING
(4) ANN PAGE SPARKLE VANILLA PUDDING

Packer.—Quaker Maid Company, Inc., New York.

Distributor.—The Great Atlantic and Pacific Tea Company, New York.

Description.—(1) A powdered mixture containing sugar, skimmed milk powder, vanilla extract, Karaya gum, certified color and salt.

(2) A powdered mixture containing sugar, cocoa, Karaya gum and salt.

(3) A powdered mixture containing sugar, corn starch, cocoa, powdered skim milk, salt and vanillin.

(4) A powdered mixture containing cane and corn sugars, corn and arrowroot starches, vanilla extract, salt and certified color.

Manufacture.—The dried or granulated ingredients are mixed and mechanically filled into moisture-proof parchment paper bags, which, in turn, are inserted into tightly sealed cartons wrapped in cellophane.

Analyses (submitted by manufacturer).—

	(1) per cent	(2) per cent	(3) per cent	(4) per cent
Moisture	0.4	1.1	3.1	3.1
Total solids	99.6	98.9	96.9	96.9
Ash	1.4	1.3	1.7	1.2
Salt (NaCl)	0.6	0.7	0.7	1.0
Fat (ether extract)	0.2	2.3	2.4	...
Protein (N×6.25)	3.4	5.4	2.7	...
(N×6.38)				
Reducing sugar as dextrose	...	...	...	21.2
Reducing sugar as lactose	4.6	...	...	...
Total invert sugar	98.1	79.6	56.0	73.4
Sucrose (calculated)	89.0	75.6	53.2	49.5
Crude fiber	...	1.0	0.7	...
Starch (acid conversion)	...	4.0	26.6	...
Carbohydrates other than crude fiber (by difference)	94.6	88.9	89.4	95.7

Calories.—(1) 3.94 per gram; 112 per ounce.
(2) 3.98 per gram; 113 per ounce.
(3) 3.90 per gram; 111 per ounce.
(4) 3.83 per gram; 109 per ounce.

1. BOSWELL'S BEST BRAND HAWAIIAN PINEAPPLE SLICED
2. BOSWELL'S BEST BRAND PINEAPPLE JUICE

Distributor.—Boswell Grocery Company, Kilgore, Texas.

Packer.—Hawaiian Pineapple Company, Ltd., San Francisco.

Description.—1. Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole Hawaiian canned pineapple products (THE JOURNAL, April 8, 1933, p. 1106).

2. Canned Hawaiian pineapple juice retaining in high degree the vitamin content; the same as Dole Hawaiian Finest Quality Pineapple Juice (Unsweetened) (THE JOURNAL, June 3, 1933, p. 1769).

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SATURDAY, OCTOBER 2, 1937

SULFANILAMIDE—A WARNING

Seldom has any new drug introduced in medical practice aroused the enthusiasm that has developed for sulfanilamide. Much of this enthusiasm is warranted. The drug is truly remarkable, as indicated by startling results reported in the treatment of various infections. Indeed, its coming has stimulated research in pharmacology and biochemistry to a remarkable degree. Moreover, as is customary, departments of research associated with the manufacture of pharmaceutical products have already taken to the long trail of studying similar and associated preparations and derivatives to find something better or just as good which they can call all their own. When these derivatives appear for sale, the optimistic advertising departments will extol them as far superior to sulfanilamide itself. The therapeutic or toxic properties of new drugs cannot be predicted from their chemical formulas. Experience indicates that many of the new drugs will be without therapeutic advantage over the nonproprietary sulfanilamide; some may enhance such undesirable side reactions as granulocytopenia or severe damage to the erythrocytes. In Europe, similar research is being done on nitroso compounds and various derivatives. Out of the mass of developed preparations may come some drugs of merit. Until plenty of evidence is available, however, as to the virtues and dangers of such products, the medical profession may well be skeptical. Many months of investigations of the pharmacology, toxicology, and clinical application of new preparations under carefully controlled conditions are needed to provide evidence of therapeutic value. Some of these new compounds may have a higher chemotherapeutic index than does sulfanilamide as far as mice, for instance, are concerned. Care must be taken, nevertheless, in applying to man toxicity figures based wholly on animal experiments.

The Journal, the Council on Pharmacy and Chemistry and various individual practitioners have warned against indiscriminate use of sulfanilamide. Apparently these warnings have been insufficient. In The Journal, September 25, eleven contributions on sulfanilamide were published. Nine of these reported the occurrence of toxic manifestations, including dermatitis and photosensitization of the skin. Particularly serious are the possible dangers of granulocytopenia and sulfhemoglobinemia. The latter may sometimes go unrecognized without adequate methods of diagnosis. The complication originally called enterogenous cyanosis, thought to be due to "intestinal toxemia," has been shown to be due to the presence of sulfhemoglobin or methemoglobin in the blood.

Sulfanilamide should not be administered in association with other drugs until definite information is available as to toxic effects. Thus far only the harmlessness of sodium bicarbonate in such association seems to have been established. Magnesium sulfate and some of the coal tar derivatives are conspicuously drugs which should not be administered concurrently.

Premature publicity for this drug has, as usual, been unfortunate. The startling news reports that the administration of sulfanilamide will "cure" gonorrhea in forty-eight hours has led to some unpleasant results. Responsibility lies considerably with pharmacists who are willing to sell dangerous drugs to anybody over the counter.[1] In one large city, hospitals have admitted young men with severe sulfhemoglobinemia resulting from self medication with sulfanilamide. The physician must bear in mind the potential hazards of this drug.

SPIROCHETAL JAUNDICE

The probability that spirochetal jaundice, or Weil's disease, will become a disease of importance in this country has already been pointed out.[1] Ample evidence of the widespread geographic distribution and actual hazard from the disease has appeared in many different journals. Three cases of Weil's disease were reported in 1937 for the first time in Canton, China.[2] Zuelzer[3] reviewed fourteen cases of the disease occurring in 1934 in Denmark. In thirteen of these there was definite icterus but, as she pointed out, only about 40 to 60 per cent of all patients with Weil's disease have recognizable icterus. From Japan, Germany, Austria, South America, France and Soviet Russia[4] cases of the disease have also been reported. Davidson and his colleagues[5] reported nineteen cases

1. Sulfanilamide has been sold under a number of brand names. The physician realizes that products marketed under brand names are exactly as dangerous as those sold as sulfanilamide. Occasionally Prontosil is mentioned as a proprietary brand of sulfanilamide. Prontosil is not sulfanilamide but is a derivative of sulfanilamide which apparently breaks down in the body to sulfanilamide.

1. Spirochetal Jaundice in Sewer Workers, editorial, J. A. M. A. **103**: 493 (Aug. 18) 1934.

2. T'ang, T. K.: The Occurrence of Weil's Disease in Canton, China, Chinese M. J. **51**: 483 (April) 1937.

3. Zuelzer, Margarete: Biologie und Epidemiologie der Weil'schen Krankheit mit besonderer Berücksichtigung von Dänemark, Acta path. et microbiol. Scandinav. **12**: 511, 1935.

4. Pub. Off. Internat. d'Hyg. **26**: 1747 (Oct.) 1934; **27**: 678 (April) 1935; Compt. rend. Soc. de biol. **117**: 451, 1934; Med. Klin. **33**: 53 (Jan. 8) 1937; Klin. Wchnschr. **14**: 1147 (Aug. 10) 1935.

5. Davidson, L. S. P.; Campbell, R. M.; Rae, H. J., and Smith, J.: Weil's Disease (Leptospirosis) Brit. M. J. **2**: 1137 (Dec. 22) 1934. Davidson, L. S. P., and Smith, J.: Weil's Disease in Fish Workers, Quart. J. Med. **5**: 263 (April) 1936.

of spirochetal jaundice in fish workers in Aberdeen. Thirteen of these patients were employed definitely in the handling and cleaning of fish. These observations show that workers among fish must be included among the occupational groups especially liable to Weil's disease. Wolstencroft[6] reported a case in a canal worker in England, so that this work also must be considered hazardous in this respect. Another unsuspected source of leptospiral infection was reported in the Northumberland and Durham coal mines by Swan and McKeon.[7] In that report, twelve cases of the disease were found among miners, with a mortality of 33 per cent. There was a history of working in damp, rat-infested seams in all except one case. According to Alston and Brown,[8] in a paper read February 26, 142 authenticated instances of the disease in an obvious clinical form were reported in the British Isles during the preceding three and a half years. Twenty-one occupations or circumstances were involved and the case fatality rate was 15 per cent.

In Australia also the disease has made its appearance. In October 1933, according to Cotter,[9] at Ingham, North Queensland, appeared the first of a series of outbreaks of a disease that was regarded as entirely new to that district and which was diagnosed clinically as Weil's disease. This was the first known occurrence of the disease in Australia. This area of North Queensland is the sugar cane area. The favorable climatic conditions and the presence of infected rodents will almost certainly cause this disease to become endemic, Cotter believes, and constitute a constant danger to the health of the workers in the fields. More recently Clayton and Derrick[10] reported a case of "seven day fever" in a patient living near Pomona, South Queensland. The diagnosis was based clinically on the similarity of the patient's symptoms with those of "seven day fever" patients of the East and pathologically on the isolation of a leptospira from the patient's blood. This leptospira, however, proved to be different from a strain isolated in North Queensland and was distinguished by its lower virulence and the absence of cross agglutination. There exist in Queensland, therefore, at least two distinct kinds of leptospiral disease.

Distance in wars and epidemics frequently lends a false sense of security, as has been repeatedly illustrated for both phenomena. In the case of leptospiral jaundice, however, there is sufficient indication that the incidence of the disease in the United States is increasing and even now its incidence is such as to constitute a problem for preventive as well as curative medicine. Thus Jeghers and his associates[11] reported a case with postmortem observations and also reviewed the American cases up to 1935. From this compilation of the reported American cases it can readily be seen, they state, that each case represents a clinical picture which, in spite of minor variations, resembles the classic European and Japanese types of the disease. Occupations of the twelve patients reported up to that time were of interest in that the group included a sewer worker, a member of a swimming team, a cook, a laborer and a fish cutter. Contact with rat-infested buildings was mentioned several times. In one instance the disease developed after the patient had been soaked in rain water. Failure to recognize the disease probably accounts for the report of so few cases in the United States. As they pointed out, the true incidence and future course of spirochetal jaundice in this country will be better determined if the following conditions are fulfilled: The disease must be suspected more often and the variation in symptomatology appreciated, all suspected cases should have laboratory confirmation, laboratories (both public health and hospital) should be prepared to make the necessary diagnostic tests, and serum and prophylactic measures should be utilized when indicated.

In October 1934, according to a report in THE JOURNAL, May 9, 1936, an outbreak of jaundice occurred among the students attending a religious novitiate in St. Louis County, Mo.[12] This outbreak involved thirty-two students out of a total of 132. Leptospira morphologically identical with Leptospira icterohaemorrhagiae was readily demonstrated in samples of water obtained from holy water fonts. While the causal relationship between the leptospira and the outbreak of jaundice could not be proved, it was in some respects of suspicious nature and might in fact be similar to the milder of the two diseases reported from Australia.

In San Francisco[13] late in 1935, two men working as cribbers in the city sewers became ill and were subsequently diagnosed as having spirochetal jaundice. In March 1937 four more cases of the disease were reported in rapid succession in that city. These cases were entirely unrelated and in different localities. The clinical diagnoses were confirmed by laboratory examination. The examination of rats, by the George William Hooper Foundation for Medical Research, in the vicinity of one case indicated approximately 33 per cent infected by the spirochetes. It seems likely that, if equal care is taken to make a correct diagnosis in cases of obscure jaundice, other cities will find similar cases. Furthermore, if public health authorities carry out investigations on rodent infestation elsewhere, the reservoir in animals may be found high in many parts

6. Wolstencroft, John: Weil's Disease in an English Canal Worker, Lancet **1**: 86 (Jan. 12) 1935.
7. Swan, W. G. A., and McKeon, J. A.: Weil's Disease Among Coal Miners, Lancet **2**: 570 (Sept. 7) 1935.
8. Alston, J. M., and Brown, H. C.: The Epidemiology of Weil's Disease, Proc. Roy. Soc. Med. **30**: 741 (April) 1937.
9. Cotter, T. J.: Weil's Disease in North Queensland, Brit. M. J. supp. **1**: 51 (Feb. 1) 1936.
10. Clayton, G. E. B., and Derrick, E. H.: The Presence of Leptospirosis of a Mild Type (Seven Day Fever) in Queensland, M. J. Australia **1**: 647 (May 1) 1937.
11. Jeghers, H. J.; Houghton, J. D., and Foley, J. A.: Weil's Disease, Arch. Path. **20**: 447 (Sept.) 1935.
12. Willett, J. C.; Sigoloff, Emanuel, and Pfau, C. L.: An Institutional Outbreak of Epidemic Jaundice, J. A. M. A. **106**: 1644 (May 9) 1936.
13. Personal communication from Dr. J. C. Geiger, director of public health.

of the country. It seems certain, from the facts of the last three years, that spirochetal jaundice is at least as great a hazard as potentially adjudged three years ago. Individual cases of this disease, while probably more frequent than is generally supposed, are still of sufficient rarity to warrant their careful study and reporting. Any general outbreaks of jaundice are at least partially the responsibility of public health agencies and demand thorough bacteriologic, serologic and rodent examinations.

Current Comment

END RESULTS OF RESPIRATOR TREATMENT

The immediate dramatic results of the use of respirators in failing pulmonary function has received too much attention to necessitate reemphasis. The eventual issue in patients who have received this form of treatment, especially over prolonged periods, is not so well understood. Thus Wilson [1] reported that, in six children who had paralysis of the intercostal muscles and the diaphragm from poliomyelitis without complications, the Drinker respirator was efficient in maintaining pulmonary ventilation for long periods. The use of the machine, however, for nine children with bulbar paralysis without intercostal involvement, although it seemed helpful, was often ineffective. Only two of these nine children survived. In such cases, therefore, he recommends that the machine be employed only as an emergency measure and after every attempt has been made to free the pharynx from secretions. Except for moderate emphysema found at necropsy in three patients with bulbar paralysis, there was no evidence discovered of harm due to its use. Legg [2] was impressed with the life saving character of the machine in respiratory involvement due to infantile paralysis but noted that a considerable number of patients who survived developed deformities of the chest and many failed to recover the power of voluntary expansion of the chest. Smith,[3] in a paper published in 1933, noted that data received from various orthopedic hospitals and convalescent homes revealed that about one third of the respirator patients died and that the cause of death on the hospital records was given as bronchopneumonia. All of twelve patients with bulbar lesions reported by Brahdy and Lenarsky [4] died. Among thirty-four patients with spinal lesions only, twelve died in the respirator and four within six weeks after treatment. Equally discouraging is the report by Crone [5] on twenty-four patients with acute poliomyelitis treated in the Drinker respirator. Of the nine having involvement of respiratory muscles only, five died and four survived. Of the ten patients with bulbar involvement all died, and, of the five with both mechanisms affected, three died and two survived. Landon [6] has reported eighty-eight cases of poliomyelitis treated in the respirator, death occurring in fifty-three in the hospital, a mortality rate of 60.2 per cent. Of the thirty-five patients treated in the respirator able to breathe without difficulty and without artificial aid, sixteen, or 45.7 per cent, had died at the end of eighteen months, practically all of them from respiratory infections. According to another study by Brahdy and Lenarsky,[7] twenty-seven of sixty-three patients treated in respirators were discharged from the hospital. Twelve of these twenty-seven patients who survived the hospital treatment died at intervals of from two weeks to two and a half years afterward. All of them had residual paralysis of some of the respiratory muscles. Seven of the surviving patients were either bedridden or greatly limited in their physical activities. Seven others alive at the time of reporting were well enough to attend school and two had no residual paralysis whatever.

1. Wilson, J. L.: Respiratory Failure in Poliomyelitis, Am. J. Dis. Child. **43**: 1433 (June) 1932.
2. Legg, A. T.: The Use of the Drinker Respirator in the After-Care of Infantile Paralysis, J. A. M. A. **100**: 647 (March 4) 1933.
3. Smith, Emil: Respiratory Failure and the Drinker Respirator in Poliomyelitis, J. A. M. A. **100**: 1666 (May 27) 1933.
4. Brahdy, M. B., and Lenarsky, Maurice: Treatment of Respiratory Failure in Acute Epidemic Poliomyelitis, Am. J. Dis. Child. **46**: 705 (Oct.) 1933.
5. Crone, N. L.: The Treatment of Acute Poliomyelitis with the Respirator, New England J. Med. **210**: 621 (March 22) 1934.
6. Landon, J. F.: An Analysis of Eighty-Eight Cases of Poliomyelitis Treated in the Drinker Respirator, with a Control Series of Sixty-Eight Cases, J. Pediat. **5**: 1 (July) 1934.
7. Brahdy, M. B., and Lenarsky, Maurice: Respiratory Failure in Acute Epidemic Poliomyelitis, J. Pediat. **8**: 420 (April) 1936.

ORAL VACCINES IN THE "COLD" SEASON

The pharmaceutical business has never been accused of lacking in perspicacity. If one firm seems to be putting over a product, creditable or not, other firms take to the trail. Every seasonable ailment is greeted with preparations, old, new or merely revived. Summer is officially over, and the "season of colds" is already being exploited. During the winter of 1936-1937 Eli Lilly & Co. strenuously advocated the treatment of colds with an oral vaccine, Entoral. Since colds are generally self limiting, scientific evidence on the value of any preparation is hard to obtain. The Council on Pharmacy and Chemistry considered Entoral [1] and pointed out:

> After a consideration of the available evidence it would seem that the hypothesis on which "Entoral" is based is inadequately supported by experimental evidence and that the reports of its use contained in the literature are insufficiently documented. For these reasons the Council declared "Entoral" unacceptable for inclusion in New and Nonofficial Remedies.

Now the William S. Merrell Company has been circularizing the profession with claims broader and more bombastic than those made for Entoral. Its product is Catarrhal Oravax-Merrell, described as catarrhal vaccine in enteric coated tablet form. The firm claims that "by the use of Catarrhal Oravax it is now possible to immunize large industrial groups against Common Cold at extremely low cost." Where is the evidence? Has any competent industrial surgeon actually established the usefulness of this preparation? Recent advertising mentions only experiments on Merrell's own employees! Is it not likely that the firms hope to have the doctors introduce their oral vaccine preparations to the public as so many other nostrums or preparations of unestablished value have been introduced in the past?

1. J. A. M. A. **109**: 208 (July 17) 1937.

WISCONSIN'S HALL OF HEALTH

The State Medical Society of Wisconsin, in connection with its annual meeting at Milwaukee during the week of September 14, held an exhibit on health for the public. The "Hall of Health" occupied the main arena of the Milwaukee Auditorium, opening Friday evening September 10 and closing Friday evening September 17. Eighty exhibits were shown, including those of the State Medical Society of Wisconsin, the Medical Society of Milwaukee County, the Woman's Auxiliary, state and local health departments, educational institutions including Marquette University, the University of Wisconsin and national organizations, including the American Medical Association, the American Society for the Control of Cancer, the American College of Surgeons and the National Board of Medical Examiners. Special exhibits on roentgenology, sight conservation (Hall of Sight), dentistry, nursing and pharmacy were shown by the several societies of specialists and professional workers. The Camp transparent woman was shown and demonstrated. Motion pictures were running in several of the exhibits, as were special demonstrations of the subjects exhibited. The Wisconsin Anti-Tuberculosis Association displayed its traveling educational exhibit built in a trailer coach. The exhibit was opened with a radio broadcast by an announcer from station WTMJ, who took a portable transmitter into the hall and interviewed the exhibitors as he passed from booth to booth. Newspaper publicity was liberal, intelligent and prominently featured. The public reaction, awaited with interest because of the pioneer nature of this venture under state medical society auspices, was gratifying. The total attendance, estimated from entrance checks and a photoelectric cell counter at the door of the Hall of Sight, exceeded 101,000. Long lines of waiting people formed before the exhibits on cancer, syphilis, embryology, dentistry, nostrums and quackery, health and hygiene, and before the Hall of Sight. Crowds gathered about the transparent woman at every demonstration. The seats in the several motion picture rooms were well filled at most times. Through this venture the State Medical Society of Wisconsin sets a high standard. All important mediums of health education were used and coordinated effectively—the exhibit, the pamphlet, the motion picture, the personal demonstration, the healthmobile, the newspaper and the radio. With a strictly educational and noncommercial policy, it was found possible to get liberal cooperation both in personal service and in financial assistance from the professional groups alone, without contributions from outside sources except the loan of a few exhibits of definitely educational character from commercial sources —lent without advertising or other consideration. In view of the strictly educational nature of the project, the city of Milwaukee donated the use of the auditorium. In some communities health shows are being planned under the sponsorship of local medical societies and in association with health supplements to be issued by leading newspapers. Here the newspaper supports the show, the medical profession determining ethical problems and scientific exactitude. Health education is a major function of the medical profession. With this venture, the State Medical Society of Wisconsin has demonstrated not only that the profession is able and willing to discharge that function but that the public is eager to accept leadership from responsible sources.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Pellagra Survey.—Four northern counties of Arkansas have been selected as the area for a survey of pellagra now being conducted by the U. S. Public Health Service in cooperation with the American Red Cross.

Personal.—Dr. John J. Andujar, Harrisburg, Pa., has been appointed assistant professor of pathology at the University of Arkansas School of Medicine, Little Rock.——Dr. William B. Grayson, Little Rock, has been reappointed state health officer for a second term of four years.

Society News.—A round table discussion on infantile paralysis and syphilis was conducted before the Arkansas County Medical Society in Stuttgart, August 10, by Drs. William B. Grayson, state health officer; Thomas T. Ross, assistant state health officer; Arthur M. Washburn, director, division of communicable diseases, and Walter Myers Smith, director, division of maternal and child health, all of Little Rock.——The Southeast Arkansas Medical Society was addressed at McGehee, July 22, by Dr. Irving J. Spitzberg, Little Rock, on childhood tuberculosis.——The Seventh Councilor District Medical Society was addressed at a meeting in Malvern, August 10, by Drs. George B. Fletcher, Hot Springs National Park, infantile paralysis, and Shelby B. Hinkle, Little Rock, recent advances in obstetrics.

CALIFORNIA

Personal.—Karl F. Meyer, Ph.D., chairman of the department of bacteriology and director of the Hooper Foundation for Medical Research, University of California, San Francisco, has been awarded the honorary degree of doctor of medicine at the University of Zurich, Switzerland, his alma mater.

Insects Retain Plague Infection at Least Ten Months.—Dr. Walter M. Dickie, director of public health of California, Sacramento, reported to the U. S. Public Health Service, August 9, that specimens of fleas, ticks and lice, taken from ground squirrels (beecheyi) in San Mateo County during September 1936 and stored in the icebox until July of this year, produced typical plague infection when inoculated into guinea-pigs.

DELAWARE

State Medical Meeting at Wilmington, October 11-12.—The Medical Society of Delaware will meet at the Academy of Medicine, Wilmington, October 11-13. In addition to clinics at the Wilmington General and St. Francis hospitals, the following will present papers:

Dr. Lang W. Anderson, Wilmington, Urology: Its Relation with General Medicine.
Dr. Joseph M. Barsky, Wilmington, Simplified Diabetic Management—A New Regimen.
Dr. William W. Babcock, Philadelphia, Practical Points in Relation to Clinical Surgery.
Dr. John J. Cassidy, Wilmington, Pneumonia.
Dr. Frederic H. Leavitt, Philadelphia, The Danger of Preoperative Delay in Suspected Brain Tumor Cases.
Dr. George M. Piersol, Philadelphia, Some Aspects of Visceral Syphilis.
Dr. Brooke M. Anspach, Philadelphia, The Causes and Treatment of Uterine Bleeding.
Dr. Philip F. Williams, Philadelphia, Cardiac Diseases in Pregnancy, with Special Reference to Maternal Deaths from Cardiac Diseases.
Mr. J. B. McManus, Wilmington, Industrial Law.
Dr. William Zentmayer, Philadelphia, The Importance of an Eye Examination in the Fourth Decade of Life.
Dr. Robert H. Ivy, Philadelphia, Tumors of the Mouth and Jaw.

Dr. Charles P. White, Wilmington, will deliver his presidential address Tuesday evening. The New Castle County Medical Society will act as host to the state society during the meeting and Governor Richard C. McMullen will give the address of welcome.

DISTRICT OF COLUMBIA

Dr. Overholser to Superintend St. Elizabeth's Hospital.—Dr. Winfred Overholser, formerly commissioner of the Massachusetts State Department of Mental Diseases, Boston, has been appointed superintendent of St. Elizabeth's Hospital, succeeding the late Dr. William A. White. Recently Dr. Overholser has been director of the division of mental hospital research of the National Committee for Mental Hygiene. A native of Massachusetts, Dr. Overholser graduated at the Boston University School of Medicine in 1916. Until 1924 he served at the Evans Memorial Hospital and the Westborough, Gardner and Medfield state hospitals. From 1925 to 1930 he was director of the division for the examination of prisoners and was assistant commissioner from 1930 until 1934, when he became commissioner. This position he held until late in 1936. He taught psychiatry at his alma mater for several years and has been lecturer at the Boston University of Law since 1929. He served as consultant to the National Crime Commission and as chairman of the committee on delinquents and prisons of the first International Congress of Mental Hygiene. He has been a member of the Committee on Psychiatric Jurisprudence of the American Medical Association since 1929. He is a past president of the Massachusetts Psychiatric Association and in 1936 was president of the New England Society of Psychiatry.

GEORGIA

District Meeting.—The Fifth District Medical Society will meet at the Academy of Medicine, Atlanta, October 7, and hear the following speakers:

Dr. George W. Fuller, Atlanta, Surgery in Syphilis of the Stomach.
Dr. Alfred Blalock, Nashville, Tenn., Surgical Treatment of Certain Types of Heart Disease.
Dr. William G. Hamm, Atlanta, Observations on Secondary Repair of Harelip.
Dr. Paul H. Ringer, Asheville, N. C., Evolution of the Treatment of Tuberculosis.

Dr. Henry Clifford Sauls, Atlanta, president of the Fulton County Medical Society, and Dr. George A. Traylor, Augusta, president of the Medical Association of Georgia, will open the session.

ILLINOIS

Society News.—At a meeting of the Kankakee County Medical Society in Kankakee, September 9, Dr. Clark W. Finnerud, Chicago, discussed "Diagnosis and Treatment of Common Skin Diseases."——Dr. Philip F. Schneider, Evanston, addressed the Bureau County Medical Society in Spring Valley, September 14, on "Progress in Obstetrics and Gynecology."

Chicago

Personal.—Dr. Rudolf Schindler, associate clinical professor of medicine, Division of Biological Sciences, University of Chicago, has been promoted to be associate professor of medicine, and Dr. Louis Bothman clinical professor of ophthalmology.

Society News.—Dr. Charles C. Dennie, Kansas City, Mo., will be the principal speaker at the first meeting of the season of the Chicago Medical Society, October 13; his subject will be "The Immunological Aspects of Syphilis."——At a meeting of the Chicago Laryngological and Otological Society, October 4, the speakers will include Drs. Archibald L. Hoyne on "Use of P.-Aminophenylsulfanilamide in the Treatment of Scarlet Fever Carriers"; John A. Bigler, Highland Park, Ill., "Blood Cell Response to Sulfanilamide Therapy," and George S. Livingston, "Sulfanilamide Therapy in Otolaryngology."——The Chicago Council of Medical Women was addressed October 1 by Drs. Lucille H. Snow, Evanston, Ill., on "Cancer in Women" and Bertha Van Hoosen, "Maternal Mortality."——Dr. David A. Horner was chosen president-elect of the Chicago Gynecological Society at its recent annual meeting and Dr. George de Tarnowsky was installed as president. Dr. Edward D. Allen is secretary.

INDIANA

New Officers of State Medical Board.—Dr. Leslie C. Sammons, Shelbyville, was elected president of the Indiana State Board of Medical Registration and Examination at a meeting September 15 in Indianapolis, newspapers reported. He succeeds Dr. Jesse W. Bowers, Fort Wayne, who was chosen secretary. E. O. Peterson, D.O., La Porte, was elected vice president, and Dr. William C. Moore, Muncie, a new member of the board, treasurer. Other new members include Harry K. McIlroy, D.C., Indianapolis, and Dr. Henry O. Bruggeman, Fort Wayne.

New Division of Psychiatry.—A division of child psychiatry has been created in the state board of health through the cooperation of the state welfare department, the Indiana State Medical Association, the state department of public instruction and the Indiana University School of Medicine, Indianapolis. Dr. Exie Elizabeth Welsch, who has been associated for the past two years with the Philadelphia Child Guidance Clinic and has completed an internship at the Institute of the University of Pennsylvania, has been appointed director of the new division. A program will be established to deal chiefly with the preventive aspects of child psychiatry and to include consultation services to rural schools wherever special problems arise and where special schools or training are not available. In addition, a psychiatric clinic will be held regularly in connection with the outpatient department of the Riley Hospital for Children, Indianapolis, and arrangements have been made to teach the subject to the students at the school of medicine. Dr. Welsch graduated from Indiana University School of Medicine in 1932.

KENTUCKY

Changes in Hospital Superintendents.—Dr. Elbridge L. Busby, superintendent of the Western State Hospital, Hopkinsville, has been transferred to the Central State Hospital, Lakeland. Dr. James B. Markey, now acting superintendent at Lakeland, has been appointed to succeed Dr. Busby at Hopkinsville.

State Medical Election.—Dr. William E. Gardner, Louisville, was chosen president-elect of the Kentucky State Medical Association at its annual meeting in Richmond September 13-16, and Dr. Henry G. Reynolds, Paducah, was installed as president. Vice presidents were elected as follows: Drs. Robert Sory, Richmond; Elbert W. Jackson, Paducah, and Frank M. Stites Jr., Louisville. The 1938 meeting will be held in Louisville.

MICHIGAN

Society News.—Dr. William T. King, Ahmeek, was elected president of the Upper Peninsula Medical Society at its annual meeting in Houghton, August 19-20. Sault Ste. Marie was chosen as the place for the 1938 meeting.——Dr. Wendell G. Scott, St. Louis, discussed "The Kymograph" before the Muskegon County Medical Society, September 17, in Muskegon.

Graduate Short Course in Obstetrics.—A refresher course in obstetrics will be conducted in five areas of the Upper Peninsula, beginning October 4, under the auspices of the Michigan Department of Health, the department of postgraduate medicine of the University of Michigan, Ann Arbor, and the county and district medical societies. The five centers are Sault Ste. Marie, Escanaba, Marquette, Houghton and Ironwood, where lectures in obstetrics will be given one evening each week for four weeks. The five lecturers are:

Dr. Howard H. Cummings, assistant director of postgraduate medicine at the university, Care of the Pregnant Woman and Management of Toxemias and Other Complications of Pregnancy.
Dr. Norman R. Kretzschmar, assistant professor of obstetrics and gynecology, The Conduct of Normal Labor.
Dr. Harold A. Furlong, Pontiac, Hemorrhagic Complications of Pregnancy and Labor, Including Placenta Praevia and Postpartum Hemorrhage.
Dr. Alexander M. Campbell, Grand Rapids, Other Complications of Labor, Including Prolonged Labor, Difficult Labor, Forceps, Version and Operative Deliveries.

Dr. Furlong and Dr. Campbell are members of the maternal health committee of the state medical society, the latter being chairman.

MISSOURI

Marriott Memorial Pediatric Fund.—Plans are under way to create the Marriott Memorial Fund for Research in Pediatrics, in honor of the late Dr. Williams McKim Marriott, formerly professor of pediatrics and dean of Washington University School of Medicine, St. Louis. The following are members of a committee in charge of the project: Dr. Malvern B. Clopton, George R. Throop, Ph.D., Philip A. Shaffer, Ph.D., present dean of the medical school, Dr. Alexis F. Hartmann and Dr. Park J. White Jr. Persons wishing to contribute to the fund are asked to send their donations or pledges to any member of the committee or the dean's office of the university. Checks should be made payable to the university. In addition to the endowment to serve in his memory, a portrait of Dr. Marriott has been procured to hang in the St. Louis Children's Hospital. The cost of the portrait will be paid from the principal of the fund, while the income from the remainder will be devoted to research in the field of pediatrics. Dr. Marriott served as professor of pediatrics at Washington from 1917 to 1936 and as dean from 1923 to 1936.

Tuesday Is "Medical Day" in Kansas City.—A series of graduate courses will be presented by the Jackson County Medical Society at the Kansas City Municipal Hospital number 1 over a period of forty weeks during 1937-1938. The first course opened September 14 with psychoanalysis as the subject. As Tuesday has been designated "Medical Day" in Kansas City, the courses will be held each Tuesday, a different number of weeks to be allotted to each subject. The one dealing with psychoanalysis will run for six weeks, with Dr. George Leonard Harrington as instructor. Other subjects to be considered in future programs will include diabetes, endocrinology, immunology, electrocardiography, roentgenographic interpretation, physical diagnosis, bacteriology, clinical chemistry, postmortem examinations, hematology, interpretation of laboratory work, recent advances in laboratory diagnosis, tumors and urinalysis. A course on legal medicine will be conducted by members of the Kansas City Bar Association. From 5 to 6:30 each Tuesday for twenty consecutive weeks, a medical speakers' clinic will be conducted by the society to include practical instruction and practice in the essentials of speechmaking. Albert H. Johnstone, formerly director of the school of speech of the Horner Conservatory and College, is the instructor.

NEW YORK

Promotions in the Health Department.—Dr. Vivian A. Van Volkenburgh, health officer in charge of the Ithaca district, has been promoted to be assistant commissioner of local health administration, and Dr. Ernest L. Stebbins, in charge of the Rochester district, to be director of communicable diseases in the New York State Health Department.

Three Cases of Psittacosis.—Three cases of psittacosis in one family in upstate New York were reported in *Health News*, September 13. The first case was in the father of the family, who raised birds as a hobby and had an aviary of more than 100 birds. He had not allowed any one else than himself to care for the birds until he became ill July 1, after which his wife and daughter took charge of them. Subsequently they also became infected with psittacosis. Investigation revealed that about two weeks before the man became ill several types of birds had died of unexplained illnesses. The source of the infection had not been determined at the time of the report.

New York City

Fifth Health Center Opened.—The new Richmond Health Center at St. George, Staten Island, fifth of the city health department's district health centers, was dedicated September 14 with Mayor La Guardia and Dr. John L. Rice, city health commissioner, as the principal speakers. The building, financed with PWA funds of $336,436, has four floors with space for maternity, child, dental, tuberculosis and social hygiene health services, as well as bureaus of general administration, records, preventable diseases and laboratories.

Lectures on Heart Disease.—The New York Heart Association of the New York Tuberculosis and Health Association announces that its second series of lectures for practicing physicians on diseases of heart will be presented at biweekly intervals during the winter. The first lecture will be by Dr. Irving R. Roth, Tuesday afternoon, November 9, on "Management of Patients with Heart Disease" in the Blumenthal Auditorium at Mount Sinai Hospital. The course is open to all practicing physicians without registration or admission fee.

Hospital Bequest.—Mount Sinai Hospital will receive $916,579 as the residuary legatee under the will of the late Marco Fleishman, a tobacco merchant, according to an appraisal reported recently. The will provided that the bequest is to be known as the Rosetta and Marco Fleishman Fund and will be used for the construction and equipment of a new building or extension of the existing buildings to care for persons in the early stages of tuberculosis. In addition to this bequest, the hospital is to receive the principal of trust funds amounting to $270,000 on the deaths of various persons for whom the trusts were created.

OHIO

State Association Organizes Speakers' Bureau.—The Ohio State Medical Association has organized a speakers' bureau to assist county and district medical societies in obtaining outside talent for their programs. Later it is expected that the facilities of the bureau may be made available for meetings of allied and lay groups. The new bureau was organized as a part of the activities of a new committee on education, of which Dr. Clyde L. Cummer, Cleveland, is chairman. The subcommittee on the speakers' bureau is composed of Drs. Russel G. Means, Columbus, chairman; Hubert C. King, Lakewood; Howard H. Minor, Steubenville; William M. Singleton, Portsmouth, and Karl D. Figley, Toledo.

Northwestern Ohio Annual Meeting.—The ninety-third annual meeting of the Northwestern Ohio Medical Association will be held in Lima, October 5. A preliminary announcement lists the following speakers:

Dr. John S. Coulter, Chicago, Physical Therapy in Treatment of Arthritis.
Dr. Raymond C. McKay, Cleveland, Treatment of Tuberculosis in the Sanatorium and in the Home.
Dr. Sidney M. McCurdy, Columbus, The Relation of the Industrial Commission to the Physician.
Dr. Walter H. Hartung, Columbus, Syphilis Control in Ohio.
Dr. Carroll S. Wright, Philadelphia, Treatment of Syphilis.
Dr. Dean D. Lewis, Baltimore, subject not announced.
Dr. Frederick C. Irving, Boston, subject not announced.

PENNSYLVANIA

District Meetings.—The annual meeting of the Second Councilor District of the Medical Society of the State of Pennsylvania was held September 16 at the Plymouth Country Club near Norristown, with the following speakers: Drs. John O. Bower, Philadelphia, on "Radicalism versus Conservatism in the Management of the Acute Abdomen"; Richard A. Kern, Philadelphia, "Clinical Allergy," and Chauncey L. Palmer, Pittsburgh, chairman of the state society committee on public health legislation, "Legislative Activities."——The west section of the Fifth Councilor District held its thirty-first annual meeting in Carlisle, September 16. Dr. Edward L. Bortz, Philadelphia, chairman of the state society committee on pneumonia control, gave an address on "Pneumonia Control—A Major Responsibility of the General Practitioner"; Dr. Walter F. Donaldson, Pittsburgh, secretary of the state society, "The State Medical Society Reports to Its Components," and Dr. Harvey F. Smith, Harrisburg, "Acute and Chronic Appendicitis as Related to the General Practitioner."

Philadelphia

Four Solicitors for Fake Hospital Drive Sentenced.—Four men were sentenced to jail terms September 22 following their conviction of carrying on a fake hospital charity drive for the "Naturopathic Hospital," in which they collected about $30,000, newspapers reported. Fourteen men and a woman were arrested last April after an investigation by a Philadelphia newspaper and the Better Business Bureau. It was said that a group of promoters conducted the campaign from two hotels by telephone, selling tickets to a dance which was to have been held April 30. In their appeals the solicitors impersonated physicians and sold the tickets on the plea that the money was to be used for care of patients with infantile paralysis. During the trial it was pointed out in the newspapers that the "Naturopathic Hospital" had no beds for patients, but did have electrical and what "seemed to be surgical equipment." The state contended that the hospital was only a blind for the racket that paid its operators 97 per cent of the money contributed. Thomas J. Goldberg, superintendent of the "hospital," Harry S. Nurock, secretary of the Pennsylvania Society of Naturopaths, and Charles Reichner, a promoter, received sentences of two years each, and Robert Hoffman, the chief promoter, one year in the county jail. Charles L. Thomson, a solicitor, received a suspended sentence and George Brent, another solicitor, had his sentence deferred because he was reported to be ill in a hospital. These six men were convicted May 11. Of nine others on trial, the judge acquitted seven and the jury two. Those who were convicted have appealed to the supreme court.

Pittsburgh

Hospital News.—The annual "Mercy Day" celebration at Mercy Hospital was held September 23 with Major Gen. Charles R. Reynolds, surgeon general, U. S. Army, Washington, as the speaker on "Medicine in the Military Service."

Society News.—The first fall meeting of the Allegheny County Medical Society was held at the Mellon Institute Auditorium September 21 with Dr. Fred H. Albee, New York, as the guest speaker on "The Importance of the Lever at the Top of the Femur and Its Surgical Importance."

TENNESSEE

Society News.—Dr. William F. Copeland, Cornersville, addressed the Giles County Medical Society, Pulaski, August 28, on enuresis.——Among speakers at a meeting of the Dyer, Lake, and Crockett Counties Medical Society in Dyersburg, September 1, were Drs. Edward B. Smythe, Tiptonville, on

"Zinc Protamine Insulin in the Treatment of Diabetes Mellitus"; John E. Frazier, Newbern, "Sulfanilamide and Allied Chemicals" and Bernard W. Patton, Dyersburg, "Syphilis."—Dr. James L. Heffernan, Jellico, addressed the Campbell County Medical Society, LaFollette, August 26, on sulfanilamide.

UTAH

State Medical Meeting and Election.—The forty-third annual meeting of the Utah State Medical Association was held in Salt Lake City, September 2-4, with headquarters at the University of Utah. The guest speakers were:

Dr. William B. Carrell, Dallas, Texas, Treatment of Knee Disability Resulting from Injury to Crucial or Collateral Ligaments and from Faulty Muscle Support; Treatment of Fractures of the Neck of the Femur.
Dr. Henry Hunt Searls, San Francisco, Closure of Surgical and Traumatic Wounds; Modern Concept of the Pathologic Diagnosis and Treatment of Thyroid Diseases.
Dr. Winchell McK. Craig, Rochester, Minn., Importance of Adequate Treatment in Injuries of the Head; Influence of Early Diagnosis on the Surgical Treatment of Tumors of the Brain.
Dr. Claude F. Dixon, Rochester, Minn., Cancer: Its Curability; Acute Abdominal Disease.
Dr. Morris Edward Davis, Chicago, Use and Abuse of Cesarean Section.
Dr. Ole A. Nelson, Seattle, Aortography for Diagnosis of Renal and Abdominal Conditions; Cervicitis in Relation to Urinary Symptoms and Backache.
Dr. William W. Swanson, Chicago, The Commonly Missed Pediatric Diagnosis.
Dr. Harry C. Warren, San Francisco, Surgery versus Conservatism in the Treatment of Pulmonary Tuberculosis.
Dr. Edward William Alton Ochsner, New Orleans, Conservative and Radical Treatment of Bronchiectasis; Peripheral Vascular Disease.
Dr. William D. Stroud, Philadelphia, Etiology of Cardiovascular Disease; Coronary Diseases Including Angina Pectoris; Clinical Efficacy of Digitalis Preparations.
Dr. Robert T. Legge, Berkeley, Calif., Occupational Diseases and Their Relation to the Medical Profession; Carbon Monoxide Poisoning and Its Treatment.
Dr. Donald C. Collins, Los Angeles, Value of Papaverine Hydrochloride in the Treatment of Postoperative Pulmonary Embolism.
Dr. Clarence M. Hyland, Los Angeles, Value of Convalescent Serum in Acute Contagious Diseases.

Before the meeting Dr. Swanson and Dr. Davis presented a course of lectures on pediatrics and obstetrics, respectively, August 31 and September 1. Dr. Claude L. Shields, Salt Lake City, was chosen president-elect and Dr. Menzies J. Macfarlane, Cedar City, was installed as president. Vice presidents elected were Drs. Donald A. McGregor, St. George; Jennings G. Olson, Ogden, and Warren O. Christenson, Wellsville. Dr. David G. Edmunds, Salt Lake City, was made secretary for three years.

VERMONT

Society News.—Dr. William Wayne Babcock, Philadelphia, addressed the Rutland County Medical Society at a meeting in Rutland July 13 on surgical conditions of the stomach.

State Medical Meeting at St. Johnsbury.—The one hundred and twenty-fourth annual meeting of the Vermont State Medical Society will be held in St. Johnsbury at the Vermont State Armory, October 13-15. A symposium on "Practical Surgery for the General Practitioner" will be presented by the following, all of the faculty of Temple University School of Medicine, Philadelphia: Drs. William Wayne Babcock, William A. Steel, Wilbur Emory Burnett, John Royal Moore and William Edward Chamberlain. Other speakers will be:

Dr. Rosco G. Leland, Chicago, director, Bureau of Medical Economics, American Medical Association, A Challenge to Medicine.
Dr. Walter Schiller, Vienna and New York, Early Diagnosis of Cancer of the Cervix Uteri.
Dr. Francis M. Rackemann, Boston, Practical Points in the Diagnosis of Asthma and Hay Fever.
Dr. William G. Ricker, St. Johnsbury, the presidential address, Modern Ideas in Diagnosis and Treatment as Exemplified by Hippocrates.
Dr. Waldo J. Upton, Burlington, vice presidential address, Cerebral Arteriosclerosis.
Dr. Christopher C. Shaw, Bellows Falls, Agranulocytic Angina.
Dr. DeC. Forest Jarvis, Barre, Clinical Experiences with Nondiabetic Use of Three Unit Doses of Insulin.

The sound film "Syphilis," produced by the American Medical Association and the U. S. Public Health Service, will be shown Thursday afternoon October 14 at the Star Theater. The annual banquet will be held Thursday evening at the St. Johnsbury House, with Dr. Frank E. Farmer, St. Johnsbury, presiding.

VIRGINIA

Pediatric Clinician Resigns.—Dr. Jay M. Arena, who has been the field clinician in pediatrics conducting graduate courses under the auspices of the department of clinical and medical education of the Medical Society of Virginia, has resigned to become associate professor of pediatrics at Duke University School of Medicine, Durham, N. C. Dr. Arena was graduated from Duke in 1932 and was associate in pediatrics on the faculty at the time of his appointment in Virginia late in 1936.

State Medical Meeting at Roanoke October 12-14.—The sixty-eighth annual session of the Medical Society of Virginia will be held in Roanoke, October 12-14, at the Hotel Patrick Henry. The meeting will open with clinics Tuesday afternoon conducted by Drs. Frank H. Lahey, Boston, on "Thyroids" and Winchell McK. Craig, Rochester, Minn., on "Surgical Treatment of Hypertension"; they are the guests of the Roanoke Academy of Medicine. At the opening general session Tuesday evening Dr. James Morrison Hutcheson, Richmond, will give his presidential address and Dr. Russell L. Cecil, New York, will speak on "Pneumonia as a Public Health Problem." Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., will also be a guest, speaking on "The Part of the Practicing Physician in Syphilis Control." Among Virginia physicians who will participate in the program will be:

Drs. James P. King and Frank A. Strickler, Radford, Insulin Shock Treatment of Dementia Praecox.
Dr. William B. Porter, Richmond, Nutritional Deficiencies and Their Relation to the Clinical Course of Heart Disease.
Dr. James Asa Shield, Richmond, Fever, Malaria and Short Wave in Treatment of Neurosyphilis.
Dr. Thomas D. Walker, Newport News, Determination of the Urinary Excretion of Ascorbic Acid (Vitamin C).
Dr. Richard W. Garnett, Danville, Hospitalization by the Group Payment Plan on a Statewide Basis.
Drs. Dudley C. Smith and Joseph M. Hitch, Charlottesville, Skin Manifestations in Tularemia.
Drs. John S. Horsley, John S. Horsley Jr., and Guy W. Horsley, Richmond, Improved Methods of Treatment for Appendicitis.

Wednesday afternoon there will be round table discussions of treatment of heart disease, obstetric problems, minor surgery, diarrhea, mental hygiene, treatment of trochanteric fractures of the femur by means of internal and external fixation, x-ray treatment of infection and treatment of nonvenereal urinary tract infections.

WISCONSIN

Special Meeting of the State Board.—The Wisconsin State Board of Medical Examiners will hold a special meeting October 14 at the Hotel Witter, Wisconsin Rapids, for consideration of reciprocity applicants only. Dr. Henry J. Gramling, Milwaukee, is secretary of the board.

Society News.—Drs. Everett D. Plass, Iowa City, and Hugh A. Cunningham, Milwaukee, will address the Medical Society of Milwaukee County, Milwaukee, October 8, on "Toxemias of Late Pregnancy" and "Obstetrical Anesthesia and Analgesia" respectively. Dr. Herman A. Heise, Milwaukee, will be the speaker for the special feature "Fifteen Minutes of Preventive Medicine," on "Bacterial Allergy."—Drs. Walter G. Sexton and Robert S. Baldwin, Marshfield, addressed the Green Lake-Waushara County Medical Society, Wautoma, August 12, on "Infections of the Urinary Tract" and "Diabetes Mellitus" respectively.

GENERAL

International Dermatologic Congress in New York.—The tenth International Congress of Dermatology and Syphilology will be held in New York in September 1940, it is announced. Dr. Oliver S. Ormsby, Chicago, is president general of the congress and Dr. Paul A. O'Leary, Rochester, Minn., secretary general.

Automobiles Kill 196.—Deaths caused by automobiles in 125 major cities in the United States during the week ended September 18 totaled 196, six fewer than in the corresponding week of last year, according to the bureau of the census of the U. S. Department of Commerce. Los Angeles recorded the highest total with eighteen deaths, Chicago placed second with sixteen deaths and New York third with thirteen. Most of the cities reporting have a population of 100,000 or more, it was stated.

Annual Safety Congress in Kansas City.—The twenty-sixth National Safety Congress and Exhibition will be held in Kansas City, Mo., October 5-8, at the Municipal Auditorium, under the presidency of Dr. Cassius H. Watson, New York. Among physicians scheduled to participate in the program are:

Dr. Harold A. Vonachen, Peoria, Ill., Placement of Men from the Standpoint of Physical Fitness.
Dr. Louis Schwartz, U. S. Public Health Service, New York, Industrial Dermatitis and Its Prevention.
Dr. Richard D. Mudd, Saginaw, Mich., Industrial Burns and Their Treatment.
Dr. Hyman I. Spector, St. Louis, Industrial Tuberculosis—A Public Health Factor.
Dr. Glen E. Kassebaum, El Dorado, Kan., The Worker's Health.
Dr. James R. Garner, Atlanta, Fatigue and Its Relation to Accident Prevention.
Dr. Royd R. Sayers, U. S. Public Health Service, Washington, D. C., What Industrial Dusts Are Hazardous? Why?
Dr. Allen D. Lazenby, Baltimore, The Doctor's Part in Controlling Dust Hazards.

Dr. Roy R. Jones, U. S. Public Health Service, Washington, Metal Fume Poisoning and Its Prevention.
Dr. Peter B. Rastello, Detroit, Electroplating Fumes and Vapors and Their Elimination.

Clinical and Climatological Meeting.—The fifty-fourth annual meeting of the American Clinical and Climatological Association will be held in Baltimore at the Belvedere Hotel, October 11-13. Among speakers on the program will be:

Dr. Francis M. Rackemann, Boston, Molds as a Cause of Hay Fever and Asthma.
Dr. Alvah H. Gordon, Montreal, The Mental Complications of Heart Disease.
Dr. Joseph T. Wearn, Cleveland, Is Hypertrophy of Heart Muscle Beneficial?
Dr. Staige D. Blackford, Charlottesville, Va., Similarities of Tularemia to Tuberculosis.
Dr. John H. Musser, New Orleans, Deficiency Disorders as Observed in the Far South.
Drs. Thomas M. Rivers, S. M. Ward and Robert D. Baird, New York, Vaccination Against Smallpox by Means of Intradermal Inoculation of Cultured Vaccine Virus.
Dr. Henry Rawle Geyelin, New York, Treatment of Diabetes with Protamine Insulin.

Dr. Warfield T. Longcope, Baltimore, will deliver the Gordon Wilson Lecture Tuesday at noon on "The Varieties of Hemorrhagic Nephritis and Their Prognostic Significance." At the annual dinner Tuesday evening Hon. Morris A. Soper, Baltimore, judge of the United States District Court, will be the speaker on "Medicine and the Law."

Southern Psychiatric Association.—The annual meeting of the Southern Psychiatric Association will be held at the Gunter Hotel, San Antonio, Texas, October 8-9, under the presidency of Dr. William D. Partlow, Tuscaloosa, Ala. Dr. William H. Cade Jr., San Antonio, president, Bexar County Medical Society, will give the address of welcome, and speakers will include:

Dr. George T. Harding, Columbus, Ohio, Periodicity of the Manic-Depressive Psychoses.
Dr. Giles W. Day, Galveston, Texas, Newer Methods of Psychiatric Treatment.
Dr. Whitman C. McConnell, St. Petersburg, Fla., Endocrinology in Psychiatry.
Dr. Guy F. Witt, Dallas, Texas, Mental Disturbances Due to Bromide Intoxication.
Dr. James A. Willie, Houston, Texas, Analysis of a Case of Hysteria.
Dr. Isham Kimbell, Lexington, Ky., Necessity for Comparative Study of Schizophrenic and Organic Reaction Types of Psychoses.
Dr. Walter J. Otis, New Orleans, Childhood's Early Symptoms of Mental Hygiene Problems.
Dr. David Henry Poer, Atlanta, Ga., Psychoses Due to Thyroid Disorders.
Dr. Philip Smith, New York, Psychiatric Work in New York Institutions.
Dr. C. Charles Burlingame, Hartford, Conn., Can the Point of View and Technic of Private Practice Be Carried into the Mental Hospital?
Dr. George R. Herrmann, Galveston, Neurocardiac and Neurocirculatory Disorders.
Dr. Witten B. Russ, San Antonio, Psychoses Complicating Surgical Cases.
Dr. Newdigate M. Owensby, Atlanta, Sanity in Psychiatry.

American College of Surgeons.—The twenty-seventh annual Clinical Congress of the American College of Surgeons will be held at the Stevens Hotel, Chicago, October 25-29, under the presidency of Dr. Eugene H. Pool, New York. In addition to clinics and demonstrations, the program includes symposiums on cancer, industrial medicine and traumatic surgery and fractures, and conferences on obstetrics and gynecology and on graduate training for surgery. Certain sessions will make up the annual hospital standardization conference. At the various evening sessions, the following speakers, among others, will present papers:

Dr. James H. Means, Boston, Indications for Surgery in the Treatment of Peptic Ulcer.
Dr. Roscoe R. Graham, Toronto, Technic of Surgical Treatment in the Treatment of Peptic Ulcer.
Dr. Howard C. Naffziger, San Francisco, Nucleus Pulposus and Lower Back and Sciatic Pains.
Dr. Dean Lewis, Baltimore, Relation of Chronic Cystic Mastitis to Cancer of the Breast.
Dr. Cecil K. Drinker, Boston, Genesis and Consequences of Lymphedema.
Dr. Willis D. Gatch, Indianapolis, Circulatory and Lymphatic Disturbances in the Abdomen.
Dr. Claude F. Dixon, Rochester, Minn., Diverticula of the Intestine.
Dr. Henry W. Cave, New York, Immediate or Delayed Treatment of Acute Cholecystitis (Liver-Shock and Death).
Dr. Frank Hinman, San Francisco, Tuberculosis of the Kidney.
Dr. John Mason Hundley Jr., Baltimore, Physiologic and Pathologic Changes in the Urinary Tract During Pregnancy.
Dr. Irvin Abell, Louisville, Ky., President-Elect, American Medical Association, Acute Pancreatitis.

A feature of the presidential meeting and convocation Monday evening will be the annual college oration on surgery to be delivered by J. P. Lockhart-Mummery, M.B., London, England, on "The Surgeon as a Biologist." Introduction of foreign guests will take place on this occasion. The oration on fractures will be presented Thursday evening by Dr. William O. Sherman, Pittsburgh, on "The Present Status of the Operative Treatment of Fractures."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 4, 1937.

Annual Meeting of British Association for Advancement of Science

In his presidential address before the British Association for the Advancement of Science Sir Edward Poulton surveyed the controversy on evolution, which he had witnessed at the meetings of the association since the doctrine was first presented there fifty years ago. Although it was a relatively easy matter to establish that evolution occurs, the causes are extremely complex and even today are a matter of dispute. He supported Darwin's theory of natural selection. From his own experience as an entomologist he brought forward evidence incompatible with lamarckian evolution. In the relation between predatory animal and victim there was commonly no opportunity for the latter to learn by means of experience. The elaborate adaptations by which sedentary insects remained hidden from their enemies were evolved not by contact but by avoidance of enemies. An example was the resemblance of certain caterpillars to twigs. They fed only by night and spent the day rigid, their attitude simulating a twig. Carrick had recently shown that this device completely deceives hungry birds. An example of "prophetic instinct" was found in the maggot of an African fly. It lived in soft mud which, during the dry season when the chrysalis stage was reached, would be traversed by deep cracks in which insectivorous birds could search. While the mud was still soft the maggot prepared for danger. By tunneling spirally up and down it made a line of weakness which caused a pillar to separate from the mass when the mud hardened and contracted. It then tunneled into the still soft pillar, where it became a chrysalis. However wide the cracks, the maggot had arranged that they would not involve the cylinder. This prophetic instinct could be explained only by the operation of natural selection.

An explanation of evolution different from both lamarckism and darwinism has been styled orthogenesis. It means evolution in a definite direction as the result of predetermined internal tendencies. But, as Dyer said in an address at a previous meeting of the association, this was like explaining the movement of a train by a tendency to locomotion. Darwin lifted the whole matter out of the field of mere transcendental speculation by the perfectly intelligible mechanism of natural selection.

In many quarters mendelism was at first regarded as antagonistic to darwinism. But the older belief that only large variations—mutations, as they were called—were subject to mendelian inheritance, and that small variations were not inherited, disappeared by further investigations. The foundation of darwinism thus became immensely strengthened.

Sir Edward Poulton ended his address by referring to "the greatest of the problems by which we are faced—the end of international war." The physiologist Michael Foster, in his address to the association in 1899, said that "happily the very greatness of the modern power of destruction is already becoming a bar to its use." Many looked on the great war and later wars as the end of Foster's dream of peace, but Sir Edward hoped that the association did not thus despair. He referred to the address of the paleontologist Sir Richard Owen, delivered in 1858, who in referring to the transatlantic cable said "We may confidently hope that this and other applications of pure science will tend to abolish wars over the whole earth." Confident words were inspired by the forging of a new link between the two great English-speaking nations. Nearly eighty years had passed, but with all the terrible disappointments

there had been great progress. A time would surely come, and might it come quickly, which would prove that this dream was prophetic.

TESTS FOR COLOR BLINDNESS

In her presidential address to the Section of Psychology, Dr. Mary Collins discussed the tests in common use for the detection of color blindness. The most common and the most important form of color blindness was red-green. Recent figures gave the percentage of the population affected as from 5 to 12, in contrast with the older figure of from 3 to 4. Her own result was 7.5. The figures did not indicate that the defect is increasing but that detection is more accurate owing to improved tests. It is gradually being realized that there are many degrees of this defect. In extreme forms there was complete blindness to red and green, but in a milder form these colors could be discriminated if conditions were favorable; but when unfavorable, as in mist or fog, the colors were confused. Tests for color defects fell into two categories, in which transmitted and reflected light were respectively used. While the former was regarded as more fundamental, the latter could be of great service for quick diagnosis. As spectrometric examination was not always possible, the lantern or pigment test could be used as a substitute. Both were essential when lack of color discrimination involved risks to the community. Another category was that of persons with unequal sensibility to red and green. Some were "red weak," others "green weak." Difficulty of detection of color blindness was increased by the deliberate tricks practiced by affected persons to avoid detection. One man suffering from complete red-green color blindness was yet able to make passable copies of paintings. To obtain green he mixed blue and yellow but never used green paint, even though to normal eyes it might be an exact match.

SELF HYPNOTISM

Before the Section of Psychology Dr. William Brown, Wilde reader in mental philosophy and director of the institute of experimental psychology, University of Oxford, read a paper on "Hypnosis, Suggestibility and Progressive Relaxation." He said that, although it was true that persons of certain pathologic types were easily hypnotizable, relatively normal people were also hypnotizable to different degrees. In the hypnotized and relaxed state the statements made to the patient should always be positive in character. In this way not only might faulty mental function be rectified but mental powers, such as concentration and memory, might be increased above normal. Inhibitions, doubts, conflicts and fears of failure could be removed, and the power of imagination of success, which was of extraordinary importance in many of these cases, could be reinforced.

Almost anybody with care, deliberation and concentration could hypnotize himself. "You must concentrate your mind on a point of the far distant horizon. Relax your muscles completely and say to yourself 'I am getting drowsy.' While in this state you must make suggestions to yourself of increased powers—such as that you will have a good night's rest tonight, or you are going to make a speech tonight without stammering. You can do that without harm to yourself and with great benefit." Dr. Brown thought that, whatever opinions might be held with regard to the political aims of the totalitarian countries, their methods of attaining national efficiency under individual leadership found support in modern psychology.

THE SEX RATIO

For the subject of his presidential address to the Section of Zoology, Prof. F. A. E. Crewe took "the sex ratio," on which he commented mainly in relation to the human species. He said that the statistical review of the registrar general was one of the most interesting zoological papers to appear each year, "as a progress report of a vast and exciting zoological experiment which we are conducting scientifically or otherwise, with ourselves as the experimental material." The primary sex ratio (the ratio at conception) was in this country about 120 males to 100 females, but as the males were more delicate at all ages the numbers became equal in late adolescence, and in maturity the females outnumbered the males, until at the age of 85 and over women were more than twice as numerous as men. Professor Crewe believed that the greater delicacy of the male was an instance of a general principle applicable to the male of all organisms and was due to the male having a higher rate of metabolism, which made him less resistant to unfavorable conditions. The sex ratio at birth was "an instrument of precision by which a human society may measure the quality of its structure," a yardstick to determine the success of social services and health measures. The equality of the sexes in early maturity he regarded as brought about by adaptive adjustment of the primary sex ratio and differential sex mortality to give equal numbers of males and females at the optimal period for reproduction. The precise sex ratio of a species must not be regarded as a biologic accident but as a delicate adjustment of contrary forces brought about by selection during the course of gestation.

In the discussion, Dr. Walton of Cambridge reviewed the possible methods by which the sex ratio could be experimentally controlled. In mammals the most promising line of attack was to find some means of separating the male-determining from the female-determining sperms. This was theoretically possible and might be of enormous economic importance in stock breeding and might open new vistas in economic biology.

PARIS

(From Our Regular Correspondent)

Sept. 4, 1937.

International Congress for the Protection of Children

The twelfth International Congress for the Protection of Children was held in Paris, July 19-21 inclusive, with the secretary of public health, Mr. Mark Rucard, presiding. The work of the congress was taken up in four sections. In the medical section the first paper was by Drs. Lesné and Huber of Paris on the diet for children of school age as agreed on by the majority of foreign and French pediatricians. This was 100 calories on the average per hundred kilograms and a well balanced ration including from 55 to 60 per cent of carbohydrates, 30 per cent of fats and 15 per cent of proteins. Dr. Koenen of the Netherlands called attention to the danger of underfeeding due to unemployment and the necessity of teaching the proper preparation and utilization of foods. Grulee of Chicago emphasized the existence of the individual factor and the need of vitamins. Messerli of Switzerland showed the close relation between adequate feeding and resistance to infection. Rickets and hypotrophy are at present increasing in frequency, a direct result of unemployment and underfeeding. Veras of Greece stated that in countries bordering on the Mediterranean a great deal of bread is eaten. Meat is replaced by fish, butter by oil. Vegetables and fruit are plentiful. The subject of convulsions in infancy was discussed by a number of speakers. There was general agreement that the syndrome may be due to a number of different causes and that the prognosis was not favorable from the psychic and neurogenic points of view. About 60 per cent of epileptic persons give a history of convulsions in infancy, according to Dr. Babonneix, who was particularly pessimistic as to the future of children who have had convulsions in infancy. The treatment must be both symptomatic and causal. The most frequent causes are obstetric trauma, heredo-alcoholism, hereditary syphilis and encephalopathies due to a not yet identified virus, often latent until the convulsions appear.

The pedagogic section discussed the legitimacy, effects and mode of application of punishment. Corporal chastisement ought never to be used after the age of 7. Punishment is not only legitimate but necessary in order to arouse a sense of judgment, of self criticism and of social duty in children. Punishment should be judiciously stimulating and never create an inferiority complex in the child. At school, as at home, an effort should be made to arouse the spiritual value of being good and a sense of responsibility.

In the legal section there was general agreement with regard to the great value of juvenile courts. These were established in France in 1935. Their objectives should be both penal and educative under surveillance as wards of the courts. The influence of the cinema was favorably commented on, but surveillance was deemed indispensable for children.

In the social section, Dr. Devraigne called attention to the widespread existence of inadequate housing in France. Eighteen per cent of the families have only one room, and in the larger cities 26 per cent of the homes are occupied by too many persons. Ten per cent of these 26 per cent have one room for three persons, 33.7 per cent one room for from five to seven persons, and 40 per cent one room for seven persons. This overcrowding is responsible for physical, social and moral defections.

Congress of Medicine as Applied to Physical Education and Sports

The first International Congress of Medicine as applied to Physical Education and Sports was held in Paris July 11-17. Many representatives of foreign countries took part in the program. The necessity of medical surveillance of physical education in childhood and adolescence was the subject of many of the papers. Examination of the heart in its reaction to effort was discussed by Laubry of France, and Van Boggaert and Brouha of Belgium. A study of the fatigue or obstacle reaction test of respiratory capacity was reported by Donaggio of Italy. The necessity of close cooperation of the teacher, physical instructor, parents and physician was emphasized in papers read by Oelsnitz of France and Giovanni of Italy. Demonstrations were given by pupils of the Irene Popard and Susanne Lenglen schools of Paris and by members of the officers' physical culture center near Paris.

Meeting of French Orthopedic Congress

The president of this year's French Orthopedic Congress, which will be held in Paris, October 7-9, will be Prof. Etienne Sorrel. The first day will be devoted to clinics at various Parisian hospitals. At the second day's session, papers will be read by Drs. Leveuf and Perrot on tendon transplantations on the foot for infantile paralysis, and by Dr. Allard of Berck on bilateral coxalgia. The third day will be spent at clinics in Parisian hospitals and on the day following the close of the congress the members will visit the various orthopedic institutions at Berck-Plage in the North of France, one of the largest centers for the treatment of tuberculous bone lesions in the world. Those wishing to attend this congress should write to Dr. André Richard, 45 Avenue Paul Doumer, Paris (16) or Dr. Louis Tavernier, 7 rue de Bonnel, Lyons, France.

Study of Action of Morphine on Kidney

In a graduation thesis by Claude Macrez, which appeared recently, the results are given of experiments which show that in large doses morphine checks diuresis and the selective action of the kidney on the blood, but that this action is only temporary and does not cause any changes in the renal parenchyma. Repeated subcutaneous daily injections over a period of several months of one-sixth grain (0.01 Gm.) or more are not followed by any progressive increase in the blood urea content or by microscopic changes in the kidney. Hence morphine can be given without hesitation in heart disease, even if generalized edema or a high blood urea content exists.

Silver Nitrate Solution for Instillation in Eyes of New-Born

At a recent meeting of the Académie de médecine a report was submitted by a special committee, headed by Professor Tiffenau, which had been appointed to study a modification of the present 2 per cent silver nitrate solution, which obstetricians and midwives are obliged by law to use as a prophylactic against ophthalmia neonatorum. The committee in its report recommended a reduction to a 1 per cent solution, as the instillation of a 2 per cent solution, when more than one drop was used, had been followed by corneal ulcerations. With the weaker (1 per cent) solution, the use of from 2 to 4 drops was found to be perfectly safe. The report of the committee was adopted.

Course in Broncho-Esophagoscopy by Dr. Chevalier Jackson

Dr. Chevalier Jackson of Philadelphia has been invited by Dr. J. M. Le Mee to give a course in broncho-esophagoscopy at the Fanny Blumenthal Clinic in the Children's Hospital of Paris. The course will begin September 1 and end September 10. The number of participants is limited to twelve. The clinical lessons will be given in Dr. Le Mee's service and work on the cadaver at one of the dissecting rooms of the medical school.

BERLIN

(From Our Regular Correspondent)

Aug. 30, 1937.

Report of Studies on Progressive Muscular Atrophy

The Italian clinician Professor Meldolesi of Rome recently reported to the Berlin Medical Society on his investigation of progressive muscular atrophy. His material comprised more than 100 cases and covers a period of nine years. Especially characteristic features of the clinical picture are the progressivity, a typical muscular deficiency which pervades all the musculature, even the apparently unaltered, characteristic disturbances of metabolism, a familial diathesis, and a disturbed digestion. The most frequently exercised muscles are the first to be affected, and if strenuous exertion has been customary the course of the disease will be particularly severe. The muscle substance becomes as pale as fish-flesh as a consequence of myoglobulin deficiency. The muscular metabolism is always disturbed in that, whereas much creatine is secreted, the elimination is reduced. This disorder, like the always demonstrable disturbances in sugar metabolism (reduction of the glycogen control of the musculature) results from disturbed myoglobulin metabolism. Myoglobulin is a catalyzer of carbon dioxide and the basis of the serum and hence inhibits acidosis of the working muscle which would otherwise ensue. The disappearance of myoglobulin produces all the other clinical signs of progressive muscular atrophy. Meldolesi was likewise able to detect in the healthy relatives of myopathic patients the presence of myoglobulin deficiency together with its sequels, such as the increased excretion of mesobilirubin, a decomposition product of myoglobulin, in the bile and in stools; creatinuria, and depletion of the glycogen reserves of the musculature. This myopathic diathesis was observed by Meldolesi in sixty families. Myoglobulin deficiency is a character transmitted from the accessory chromosome through the female sex. In all cases in which the myopathic diathesis led to disease, the pancreas was found to be much altered anatomically and functionally. External pancreatic secretion was always influenced and the ferment values, especially of trypsin, were notably reduced. The extent of this hypochylia paralleled the severity of the general disturbance. The anatomic substratum of this alteration was a pancreatic sclerosis. According to the metabolic tests undertaken by Meldolesi, the myopathic patient presents a state of deprivation in which the protein reserves are com-

pletely exhausted. In this state absorption fails in the myoglobulin deficient muscle fibers, further damaged by exertion. If a person who presents the myopathic diathesis sustains a pancreatic injury, he will fall prey to progressive muscular atrophy. As a therapeutic measure Meldolesi administers large doses of pancreatic substance. According to his observations, within six months this treatment will reestablish the protein balance and arrest the progress of the disease. In severe cases, orthopedic operations can be of great benefit just as in poliomyelitis. For the improvement of muscular metabolism, Meldolesi administers intravenous injections of dextrose and insulin.

Influence of Depth and Type of Respiration on Basal Metabolism in Lungs

The influence of respiratory depth and type on the basal metabolism in the lungs is best viewed from the standpoint of energetics. In addition, the size of the dead space is an important consideration. The literature contains considerable divergence of opinion as to whether the effective dead space of the respiratory tract is greatly altered by the deepening of respiration. There are two opposing schools of thought: Haldane and his followers on the one hand assume that deepened respiration produces marked enlargement of the dead space, whereas Krogh and his associates found that increased depth of respiration effects a relatively low grade enlargement of the dead space. Recently F. Grosse-Brockhoff, assistant to Professor Rein in the Bonn medical clinic, carried on studies of the dead space at the physiologic institute of Göttingen University. He was aided in this investigation by Schoedel. Grosse-Brockhoff reported the following results before the Bonn Medical Society: It should be kept in mind that the proper withdrawal and measurement of the alveolar air is the predominant factor in determining the size of the dead space and also that in the method of obtaining this air lies the greatest possibility of error. The first experiments concerned estimates of the alveolar air based on the method of Benzinger and Bruch. The following data were elicited: As respiration is deepened the dead space undergoes a pronounced increase; for example, from 150 cc. during a respiratory depth of 500 cc. to 750 cc. during a respiratory depth of 2,800 cc. These observations correspond throughout with those of Haldane, yet a previous theoretical evaluation of the fluctuation of the alveolar air in the expiratory phase rendered questionable the accuracy of the mentioned experimental results. It then became necessary to apply a method that would permit a series of any number of inspirations to be analyzed in particular phases. In this manner a true mean value of the "expiratory alveolar air" could be obtained. On the basis of this procedure the investigators reached the following conclusions: If a person is in repose and the respiration deepened, the dead space exhibits only a slight increase. And if the person is active the dead space will generally be even smaller than when the person is in repose. This phenomenon is to be explained by the fact that the size of the effective dead space is dependent on the type of respiration and on the velocity of the air current in the respiratory passages. Measured in terms of carbon dioxide, the dead spaces are usually smaller than if measured in terms of oxygen. This observation verifies the assumption that parts of the lungs can function as respiratory epithelium for easily diffused carbon dioxide, whereas the same areas play no part in the oxygen exchange. The variations in the alveolar air are also of interest on other grounds. It is clearly demonstrable that between depth of respiration, type of respiration and middle position of respiration on the one hand and the extent of alveolar air on the other there exist interrelations which under certain circumstances must also influence the variations of the oxygen saturation in the blood. It may also be expected that in short and rapid respiration with lowered middle position the oxygen saturation in the blood is subject to marked variations. In such pathologic states oxygen therapy ought to exert a most favorable influence, as by its use the partial pressure necessary for saturation of the blood will remain adequate at the end of the expiratory phase.

Investigation of Bee Venom and Serpent Venom

Similarities between bee venom and serpent venom have already been time and again attested on a physiologic basis. Recently Drs. Tetsch and K. Wolff carried on experiments at the Pharmacologic Institute of Berlin University to establish chemically analogous substances within the two poisons. Both chemical and biologic procedures were followed. Bee venom can be kept in physiologic solution of sodium chloride for an indefinite period. Fairly important variations in toxicity based on the source of the poison and the season may be observed. The mean value of the minimal lethal dose is approximately 100 micrograms per gram of body weight of a mouse. Nonpoisonous fractions can be obtained from bee venom in an aqueous solution by extraction with ether and chloroform. Histamine is rendered precipitable by trinitrophenol and a powerful toxic substance is found in the precipitate. It is interesting to note that sulfur, too, is present in bee venom.

The venom of the rattlesnake Crotalus terrificus was then tested. Here extraction of the protein regularly leads to detoxication. Dialysis was ineffectual. On the basis of the analyses it can be concluded that bee venom, crotalin and cobra venom are all protein substances. Biologic tests of isolated intestines of guinea-pigs also evidence the similar composition of crotalin and bee venom. Both the natural poisons and the picrate fractions separated therefrom produce the same "tachyphylactic" effect in the intestine.

BUENOS AIRES

(From Our Regular Correspondent)

Sept. 1, 1937.

American Trypanosomiasis

Dr. S. Mazza reported on studies made in the laboratories of the Misión de Estudios de Patología regional of Buenos Aires University at Jujuy (*Prensa. méd. argent.* **24**:1394 [July] 1937). In the last two years he observed 240 cases of acute forms of Chagas disease with a mortality of 5.8 per cent. Cases have been reported from the littoral, northern, central and western zones of the country, including regions with a temperate climate. Chagas' erroneous statement that trypanosomiasis produces goiter was a hindrance to the studies. Patients suffering from trypanosomiasis do not develop goiter if they live in nongoitrous zones of the country. In goitrous zones the patients suffering from goiter or from endemic cretinism do not develop trypanosomiasis. The presence of edema of the eyelids and sometimes general edema, adenopathies and hepatosplenomegaly are all signs of diagnostic value. Some children die with meningo-encephalitic symptoms. Mother's milk may contain trypanosomes. The latter can be inoculated through the skin by scratching and also through the ocular conjunctiva. Scratching causes the infection by inoculating the feces of Triatoma. Mazza states that in all countries of South, Central and North America acute trypanosomiasis will be found, especially in children, if extensive researches are made.

Dr. Dios and his collaborators reported results of studies on triatomas in Argentina which were carried on at the Instituto Bacteriológico of the National Department of Hygiene (*Folia biologica,* 1937, Nos. 70-73). The researches were begun in 1915 by Maggio and Rosenbusch and have been carried on for twenty-two years. Examination of 30,865 insects showed that from 15 to 25 per cent of the insects are infected in the northern and central areas of the country, from 10 to 15 per cent in the western areas and 11 per cent in the Rio Negro toward the south, where it is cold. If Argentina, a large part of which enjoys a temperate climate, has so high an index of triatoma infestation, the index must be higher in the tropical regions of South, Central and North America.

Antituberculosis Center

The Argentina League Against Tuberculosis gave orders for the beginning of the construction of a large center for the study and treatment of tuberculosis. The building for the center is being constructed on a lot of 90,000 square meters given by the municipal authorities of the city to the league. The cost of the construction will be 5,500,000 Argentine pesos (about

Antituberculosis center under construction in Buenos Aires.

$2,750,000). Donations from the people of Argentina have amounted to $300,000. The House of Deputies has already allowed $1,500,000 and will give the remainder of the cost on completion of the building.

Institute of Surgery

The work on the construction of an institute for postgraduate medical and surgical studies at the ward of clinical surgery of Prof. M. Jorge at the Durand Hospital has been advanced, and an amount of $1,500,000 is to be expended in the construction.

New Faculty of Medicine

The laying of the corner stone of the new faculty of medicine of Buenos Aires took place August 9. There will be two buildings, each having ten stories in the front and eighteen stories in the rear.

VIENNA

(From Our Regular Correspondent)

Aug. 8, 1937.

The First International Short Wave Congress

Immediately following the second Congress of the Austrian Society of Roentgenology, July 12, the first International Short Wave Congress convened in Vienna. Four hundred members were present. The proceedings were conducted in three sections, on physics, medicine and biology, which met simultaneously. The administrative organization of the entire congress was entrusted to the Viennese docent Dr. Liebesny. As presidents of the sections were chosen Professor Dr. Arsonval of Paris, Senator Marconi of Rome, who has since died, and Professor Zeunek of Munich. The federal government of Austria and the municipal government of Vienna welcomed the assembled scientists in the usual ceremonious way. An extraordinary historical collection of all kinds of apparatus and machines in some way related to the production, utilization and investigation of short waves was on exhibit at the Viennese Technical Museum and aroused the interest of the delegates and the public as well.

Dr. Schliephake, a pioneer of short wave therapy, designated, as the main fields of short wave therapy, suppurative-inflammatory diseases of the skin, of the nasal sinuses and of the pleura and the lungs. Only moderate dosage is helpful; overdosage can be most harmful and underdosage is ineffectual. Professor Maragliano of Genoa recommends short wave therapy in joint diseases, both acute and chronic (arthritis deformans), especially in combination with roentgen therapy.

Professor Wintz of Erlangen has obtained favorable results from the use of short waves in acute gynecologic inflammations. He irradiates the patient with minute doses or else applies larger doses to the ovaries in order to reduce the function of those organs. It was elicited in the discussion that mastitis likewise responds favorably to this therapy. Similar results have been reported in Germany, Denmark, Hungary and America. On the basis of the literature one may expect much from short wave therapy. It was repeatedly emphasized that only low intensity doses ought to be applied, especially in acute conditions, in order to maintain a so-called athermic or minimal heating effect.

Professors Scheminzky of Vienna and Schliephake of Giessen and Dr. Pätzold of Erlangen discussed the effect of short waves on living cells according as the tissue is exposed to the influence in the coil induction field, ray field or condenser field. Dr. Dalton of London was able to adduce proof of the specific thermal effects produced by short electric vibrations. Professor Jellinek of Vienna has found that the microscopically visible cellular alterations differ from those usually caused by electrical influences.

Dr. Liebesny provided a historical account of our knowledge of short waves. Fifty years ago, Hertz discovered the waves which have been named for him. Arsonval, Marconi and Zeunek developed Hertz's discovery. Subsequent development of the field was done largely by three Viennese scientists: von Lieben, who invented the cathode ray relay in 1905, and Eugen Reisz and Siegmund Strauss, who constructed the first electronic tubes in 1911. In 1924 the condenser field was first made use of by Schereschewski in Boston. In 1929 Schliephake first applied short waves for therapeutic purposes.

Other papers submitted to the medical section were concerned with the use of short waves in varied diseases. Acute infectious infantile paralysis has been treated by short waves by Colarizi of Rome. Whereas the Italian claims to have achieved favorable results, Wolf of New York, who conducted experiments with monkeys, has been less successful. Dr. Merdinger of Rumania believes that favorable results should be anticipated only if the treatment has been begun in the early stages of the disease. It is chiefly the Italians who have made use of short wave therapy in all conceivable conditions, including chronic appendicitis, and inflammation of the eye and skin.

Samuels of Amsterdam has favorably influenced disturbances of the endocrine system by means of short waves. Ruete of Marburg applies this therapy, to the exclusion of other measures, in suppurative processes of the skin. He has in particular been able to bring about remissions in the much dreaded furunculoses of the upper lip and nose. He also recommends this treatment in sclerodermia.

Raab of Charlottenburg described experiments on the influence of short waves on the gonads and on fetal development. He found that short waves if not administered in excessive doses exercise no perceptible permanent influence on the developing embryo and that the aggregate of hereditary characters is in no way impaired. In plant embryos, however, Roth of Vienna observed a marked reaction to short waves, which was manifested in part by retardation, in part by acceleration of the period of germination.

Liebesny of Vienna stressed the need for the avoidance of heat effects in the application of short waves. Electric currents of all types possess a specific electrical effect on living tissue, which is independent of the thermal effects. The latter are above all to be avoided in the short wave treatment of inflammatory tuberculosis. Liebesny and Pace exhibited a film in which they demonstrated how powerful short wave dosage disturbs the normal arrangement of fluid atoms in milk, and liquid fat. Krasny-Ergen of Stockholm has undertaken similar investigations and is in accord with Liebesny. These two reports are of the greatest import with respect to the theoretical foundation for the practical claims of low intensity applications.

Krausz of Poland strongly recommended the use of short waves in trachoma and in suppurating injuries to the eyes and after ocular operations and infections.

Wolf of New York made some interesting observations on the effect exerted by short waves on the circulatory system: whereas mild doses dilate the capillaries and thus cause the arteries to supply greater quantities of blood, large doses damage the capillaries and at the same time dilate the arteries, thus inducing consecutive hyperemias in the tissue under treatment. Weissenberg of Vienna has found also that resistance of the skin to electricity is increased by mild irradiation but reduced by larger dosage.

Lux of Vienna stated that he had observed that in the short wave therapy of furunculosis, certain furuncles become absorbed by the organism and this motivates the formation of antitoxins. In this way furunculoses of years' duration are frequently brought to speedy cure. On the basis of this observation Lux has treated more than 100 cases of chronic rheumatism which presented purulent foci in the region of the teeth (oral sepsis) by systematic dental irradiation with short waves. Lux believes that by this procedure antibodies against the toxins of rheumatism are formed and that this makes possible the preservation of the teeth.

Marriages

RODERIC ORLANDO JONES, Elyria, Ohio, to Miss Margaret Carolyn Moore, of Norfolk, Va., in Durham, N. C., June 9.

ELIJAH EUGENE MENEFEE JR., Lynchburg, Va., to Miss Eleanor Chittenden of Weldon, N. C., June 5.

CHARLES EDWIN MCNAMARA, Washington, D. C., to Miss Virginia Adams of Lynchburg, Va., June 16.

WILBUR CURTIS HUNSUCKER, Gibson, N. C., to Miss Helen Marie McKown at Blackston, S. C., July 5.

EMMETT T. ACKERMAN, Gays Mills, Wis., to Miss Georgia Florence Gilbert of Madison, September 1.

WILLIAM G. KRUCKENBERG, Lowden, Iowa, to Miss Lenore Clinch of Elgin, Ill., in Chicago, July 3.

VESEY MARKLIN JOHNSON to Miss Lois Ruth McCortney, both of West Palm Beach, Fla., June 1.

JOHN PAUL MCCLOSKEY, Johnstown, Pa., to Miss Pauline Isabel Fisher of South Fork, June 28.

ANTHONY C. MARGLIANO, Joliet, Ill., to Miss Marcella Marguerite Coyne, in Chicago, July 15.

ROBERT J. W. KINZEL, Battle Creek, Mich., to Miss Marjory Jane Hall of Indianapolis, July 3.

LAWRENCE J. KEENAN, Fond du Lac, Wis., to Miss Helen Pfister of Sheboygan, August 7.

DWIGHT C. WIRTZ to Miss Dorothy Edwards, both of Des Moines, Iowa, September 4.

EVERETT IRVING BUGG JR., to Miss Annie Laurie Newsom, both of Durham, N. C., in June.

ROBERT G. DIESS, Sharpsburg, Pa., to Miss Cornelia A. Chilcote of Pittsburgh, June 30.

CHARLES HOUSTON GAY to Miss Mary Irvine Carter, both of Martinsburg, W. Va., June 29.

FORNEY L. MURRAY, Bristow, Okla., to Miss Edith Caroline Larson at Joplin, Mo., in June.

JAMES LLOYD MASSEY to Miss Mary McGeehee Wyatt, both of Birmingham, Ala., June 30.

PAUL SHEETS PENTECOST, Liberty, Ind., to Miss Martha Shock of Richmond, June 26.

CHARLES ZURAWSKI, Providence, R. I., to Miss Irene Webber of Trenary, Mich., June 30.

WILLIAM R. ARTHUR, Hampton, Iowa, to Miss Julia M. Edick of Eldora, July 22.

PAUL THURLOW PETIT to Miss Mary Sue Stone, both of Charleston, S. C., in July.

CHARLES H. BEHNKE, Oshkosh, Wis., to Miss Dorothy Panay of Milwaukee, August 9.

MAURICE A. MICHAEL to Miss Esther Simon Armon, both of Philadelphia, June 20.

SAMUEL MCLANAHAN, Baltimore, to Miss Evelyn Willoughby Sharp, July 2.

URBAN J. DURNER to Miss Alma Radtke, both of Milwaukee, July 29.

SAMUEL MILLER, Akron, Ohio, to Miss Esther Holter, June 28.

Deaths

Jacob Diner, New York; Fordham University School of Medicine, New York, 1913; member of the Medical Society of the State of New York; formerly dean of the College of Pharmacy of Fordham University, and professor of pharmacology, toxicology, materia medica and clinical diagnosis at his alma mater; at one time member of the Committee of Revision of the U. S. Pharmacopeia; on the medical advisory board during the World War; past president of the New York State Pharmaceutical Association and the New York Academy of Pharmacy; was attending clinical microscopist at the Fordham Hospital; visiting physician and consulting pathologist to the Knickerbocker Hospital, New York; consulting physician to St. Mary's Hospital, Hoboken, N. J.; aged 66; died, July 25, in a sanitarium at Amityville, L. I., of chronic endocarditis and cerebral hemorrhage.

James Alexander MacMillan, Detroit; University of Toronto Faculty of Medicine, Toronto, Ont., 1893; member of the Michigan State Medical Society; fellow of the American College of Surgeons; past president of the Wayne County Medical Society; emeritus professor of proctology at the Wayne University College of Medicine, formerly known as the Detroit College of Medicine and Surgery; surgeon to the Providence Hospital; consulting surgeon to the Eloise (Mich.) Hospital and the Receiving Hospital; for many years division surgeon for the Pennsylvania Railroad; aged 73; died, July 5, at his summer home in Kingsville, Ont., Canada.

John Francis Dowling, Hartford, Conn.; Long Island College Hospital, Brooklyn, 1890; member and formerly vice president of the Connecticut State Medical Society; past president of the Hartford County Medical Society; formerly member and president of the city board of health; president emeritus of the medical staff of St. Francis Hospital; on the consulting staffs of the Hartford Hospital, Mount Sinai Hospital, Municipal Hospital and the Bristol (Conn.) Hospital; aged 81; died, July 20, of arteriosclerosis, heart disease and shock due to a fall.

John Campbell Spencer, Palo Alto, Calif.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885; member of the California Medical Association and the American Urological Association; past president of the San Francisco County Medical Society; at one time associate professor of genito-urinary surgery at the University of California Medical School, San Francisco; formerly mayor of Palo Alto; served during the World War; aged 76; died, July 4.

Henry J. Farbach ✠ Louisville, Ky.; Hospital College of Medicine, 1907; member of the American Urological Association; at one time professor of histology and bacteriology at the Louisville and Hospital Medical College; for many years on the staffs of the City Hospital and the Methodist Episcopal Deaconess Hospital; aged 56; died, July 6, in the Eitel Hospital, Minneapolis, of heart disease, while attending the meeting of the American Urological Association.

Guy Shearman Peterkin, Seattle; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; member of the House of Delegates of the American Medical Association in 1909 and in 1915; member of the Washington State Medical Association, North Pacific Surgical Association, and the American Urological Association; fellow of the American College of Surgeons; aged 65; died, July 22, of a self-inflicted bullet wound.

Edward Milton Overton, Bay Shore, N. Y.; University and Bellevue Hospital Medical College, New York, 1915; fellow of the American College of Surgeons; attending surgeon to the Southside Hospital, Bayshore, consulting surgeon, Mather Memorial Hospital, Port Jefferson, Brunswick General Hospital, Amityville, and Suffolk Sanatorium, Holtsville; aged 55; died, July 10, at Orlando, Fla., of coronary thrombosis.

Miner Raymond Kendall, Cleveland; Western Reserve University School of Medicine, Cleveland, 1914; member of the Ohio State Medical Association and the American Academy of Ophthalmology and Oto-Laryngology; otologist for the board of education; served during the World War; on the staff of the U. S. Marine Hospital; aged 49; died, July 13, in the Lakeside Hospital of cirrhosis of the liver.

William C. Ford, Woodstock, Va.; College of Physicians and Surgeons, Baltimore, 1896; member of the Medical Society of Virginia; past president of the Shenandoah County Medical Society; secretary of the county board of health; for many years county coroner; member of the county school board and town council; aged 71; died, July 8, of carcinoma of the stomach with metastases.

Hervey Williams Whitaker ⊕ Columbus, Ohio; Starling Medical College, Columbus, 1881; formerly professor of rhinology and laryngology at his alma mater; served during the World War; at one time member of the board of trustees of the public library; for many years on the staff of the Children's Hospital; aged 79; died, July 12, of injuries received in a fall.

Hugh Stanley Douglas, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1923; member of the Associated Anesthetists of the United States and Canada; served during the World War; junior demonstrator in anesthetics at his alma mater; on the staffs of the Hospital for Sick Children and St. Michael's Hospital; aged 41; died, July 10.

Thomas Mulligan ⊕ Grand Forks, N. D.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1904; past president of the North Dakota State Medical Association; fellow of the American College of Surgeons; member of the surgical staffs of the Grand Forks, Deaconess, and St. Michael's hospitals; aged 60; died, July 19, of heart disease.

Jamie William Dickie ⊕ Southern Pines, N. C.; Jefferson Medical College of Philadelphia, 1918; formerly secretary of the Moore County Medical Society; served during the World War; fellow of the American College of Physicians; medical director and superintendent of the Pine-Crest Manor Sanatorium; aged 43; died, July 6, of pneumonia.

Earl Vinton McComb ⊕ Menominee, Mich.; Northwestern University Medical School, Chicago, 1907; past president and secretary of the Menominee County Medical Society; served during the World War; formerly city health officer; on the staff of St. Joseph's Hospital; aged 53; died, July 6, of coronary thrombosis.

Alva Archillous West ⊕ Guthrie, Okla.; Sioux City (Iowa) College of Medicine, 1897; Northwestern University Medical School, Chicago, 1906; past president of the Logan County Medical Society; aged 64; on the staff of the Cimarron Valley Wesley Hospital, where he died, July 4, of cerebral hemorrhage.

David W. Gaddie, Hodgenville, Ky.; University of Louisville Medical Department, 1884; member of the Kentucky State Medical Association; past president and secretary of the Larue County Medical Society; formerly county health officer; aged 75; died, July 12, of lymphatic leukemia.

James Frank Smith, Leesville, La.; Tulane University of Louisiana Medical Department, New Orleans, 1904; member of the Louisiana State Medical Society; past president of the Vernon Parish Medical Society; formerly parish coroner; aged 72; died, July 3, of carcinoma of the prostate.

Ray Vaughen ⊕ Cedar Mills, Ohio; Ohio-Miami Medical College of the University of Cincinnati, 1913; past president of the Adams County Medical Society; aged 53; died, July 2, in the University Hospital, Columbus, of hypernephroma with metastases of the lungs.

David Decker McNaughton, Argyle, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1887; member of the Michigan State Medical Society; past president of the Sanilac County Medical Society; aged 71; died, July 6, of heart disease.

Claude L. Taylor ⊕ Doylestown, Pa.; Jefferson Medical College of Philadelphia, 1924; served during the World War; county medical examiner; aged 43; at one time assistant surgeon lieutenant, junior grade, U. S. Navy; was killed, July 11, in an airplane accident.

Aileen Marjory Betteys Corbit, Oxford, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1902; member of the Michigan State Medical Society; formerly village health officer; aged 59; died, July 12, of cerebral hemorrhage.

William Cleveland Woodcock, Denver; Tulane University of Louisiana Medical Department, New Orleans, 1906; member of the Colorado State Medical Society; on the staff of the Denver General Hospital; aged 52; died, July 6, of pneumonia.

William S. Donnelly, Stillwater, N. Y.; Albany (N. Y.) Medical College, 1883; formerly chairman and member of the county board of supervisors; for many years health officer; aged 79; died, July 6, of chronic myocarditis and bronchopneumonia.

Alfred Henry Stiebeling, Long Island City, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1883; aged 76; died, July 12, in the Grasslands Hospital, Valhalla, of an overdose of morphine.

Edward Orestes Jenkins, Goodlettsville, Tenn.; University of Nashville Medical Department, 1899; at one time state prison physician in Nashville; aged 60; died, July 7, in the Protestant Hospital, Nashville, of subdural hemorrhage.

Fred Joseph Kraus, Chicago; Rush Medical College, Chicago, 1929; member of the Illinois State Medical Society; president of the staff of the Woodlawn Hospital; aged 37; died suddenly, July 11, of coronary thrombosis.

George Wickliffe Webster, Providence, R. I.; Hahnemann Medical College and Hospital of Philadelphia, 1924; on the staff of the Homeopathic Hospital; aged 38; was shot and killed, July 16, by an unknown assassin.

Hubert Felix Leach, Forth Worth, Texas; Fort Worth School of Medicine, 1899; for many years president of the board of trustees of the Weatherford (Texas) College; aged 61; died, July 4, of cerebral hemorrhage.

Lanphear W. Webb, Philadelphia; Hahnemann Medical College of Philadelphia, 1878; aged 70; died, July 12, in St. Luke's and Children's Hospital, of injuries received in an automobile accident.

Charles Riley, New Ross, Ind.; Eclectic Medical Institute, Cincinnati, 1894; member of the Indiana State Medical Association; formerly county coroner; aged 70; died, July 12, of coronary occlusion.

Charles Leone, Buffalo; University of Buffalo School of Medicine, 1911; member of the Medical Society of the State of New York; aged 52; died, July 4, of cerebral hemorrhage and hypertension.

William Henry Seymour, Charles City, Iowa; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1898; aged 71; died, July 4, in the Cedar Valley Hospital, of myocarditis.

George Heywood Vernon, Beardstown, Ill.; Hospital College of Medicine, Louisville, Ky., 1898; member of the Illinois State Medical Society; aged 62; died, July 6, of heart disease.

Stephen Alvah Russell, Fairview, Mo.; University of Tennessee Medical Department, Nashville, 1892; member of the Missouri State Medical Association; aged 67; died, July 2.

James Timothy Marsden, Pueblo, Colo.; University of the City of New York Medical Department, 1882; aged 82; died, July 6, in the Parkview Hospital, of pneumonia.

Stanley F. Wietrzynski, Chicago; Chicago College of Medicine and Surgery, 1914; served with the Polish Army during the World War; aged 46; was found dead, July 12.

Woodman Robert Marriett, Capron, Ill.; Rush Medical College, Chicago, 1886; aged 79; died, July 18, in the Municipal Hospital, Beloit, Wis., of prostatic hypertrophy.

Lloyd Orrin Thompson, Greenwich, Conn.; Dartmouth Medical School, Hanover, N. H., 1893; aged 67; died, July 16, of chronic myocarditis and nephritis.

Clifford Charles Porter, Greensburg, Pa.; Jefferson Medical College of Philadelphia, 1888; aged 76; died, July 6, of erysipelas and pneumonia.

Junius B. Wright, Portland, Ore.; College of Physicians and Surgeons, Keokuk, Iowa, 1876; aged 102; died, June 20, of bronchitis and senility.

George A. Pruitt, Santa Cruz, Calif.; Medical College of Ohio, Cincinnati, 1877; aged 86; died, June 23, of heart disease and fracture of the hip.

Samuel W. Mims, Sylvania, Ga.; University of Georgia Medical Department, Augusta, 1878; aged 83; died, July 8, of coronary thrombosis.

John Phillip Zieg, San Francisco; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1896; aged 64; died, June 3.

Frank P. Young, Los Angeles; Kentucky School of Medicine, Louisville, 1893; aged 67; died, June 11, of arteriosclerotic heart disease.

Rita Ehrmann Dunlevy, New York; New York Medical College and Hospital for Women, 1888; aged 73; died, July 5.

Arthur Valentine Brown, Kitchener, Ont., Canada; Trinity Medical College, Toronto, 1904; aged 56; died, June 21.

William Merrick Carn, Bowman, S. C.; Medical College of South Carolina, Charleston, 1887; aged 74; died, June 28.

George Buchanan, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1871; aged 94; died, June 14.

Kilpatrick Cross, Jacksonville, Fla.; University of Georgia Medical Department, Augusta, 1910; aged 60; died, July 4.

Ora Harland Cumberworth, Granger, Ohio; Starling Medical College, Columbus, 1901; aged 61; died, July 4.

John E. Wilkinson, Ottumwa, Iowa (licensed in Iowa in 1886); aged 100; died, June 28, of senility.

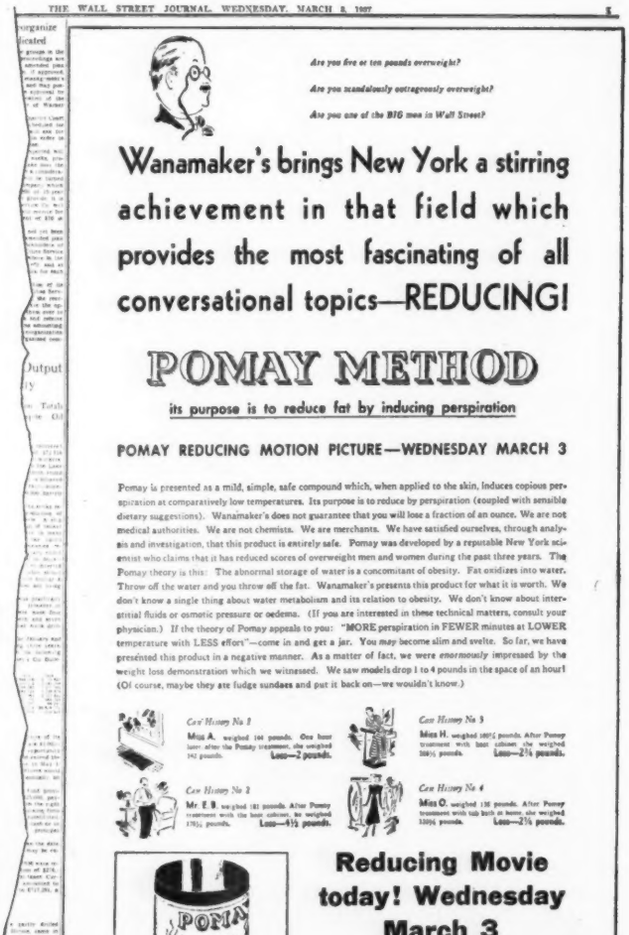
Louis Robert Eichberg ⊕ New York; Chicago Medical College, 1890; aged 67; died, July 6.

Bureau of Investigation

POMAY ꝶ 7

Reducing Compound, Essentially Petrolatum, Brings Record Price of Ten Dollars for Eight Ounces

"Pomay ꝶ 7," a product of the Cutasy Laboratories, Inc., New York, announced as "a new idea in reducing," has been extensively advertised by such department stores as Gimbel Brothers, Philadelphia; J. N. Adams & Company, Buffalo; Wanamaker's, New York; Mandel's Chicago, and Thalhimer's, Richmond.



THE WALL STREET JOURNAL, WEDNESDAY, MARCH 3, 1937

Are you five or ten pounds overweight?

Are you scandalously outrageously overweight?

Are you one of the BIG men in Wall Street?

Wanamaker's brings New York a stirring achievement in that field which provides the most fascinating of all conversational topics—REDUCING!

POMAY METHOD

its purpose is to reduce fat by inducing perspiration

POMAY REDUCING MOTION PICTURE—WEDNESDAY MARCH 3

Pomay is presented as a mild, simple, safe compound which, when applied to the skin, induces copious perspiration at comparatively low temperatures. Its purpose is to reduce by perspiration (coupled with sensible dietary suggestions). Wanamaker's does not guarantee that you will lose a fraction of an ounce. We are not medical authorities. We are not chemists. We are merchants. We have satisfied ourselves, through analysis and investigation, that this product is entirely safe. Pomay was developed by a reputable New York scientist who claims that it has reduced scores of overweight men and women during the past three years. The Pomay theory is this: The abnormal storage of water is a concomitant of obesity. Fat oxidizes into water. Throw off the water and you throw off the fat. Wanamaker's presents this product for what it is worth. We don't know a single thing about water metabolism and its relation to obesity. (If you are interested in these technical matters, consult your physician.) If the theory of Pomay appeals to you: "MORE perspiration in FEWER minutes at LOWER temperature with LESS effort"—come in and get a jar. You *may* become slim and svelte. So far, we have presented this product in a negative manner. As a matter of fact, we were *enormously* impressed by the weight loss demonstration which we witnessed. We saw models drop 1 to 4 pounds in the space of an hour! (Of course, maybe they ate fudge sundaes and put it back on—we wouldn't know.)

Case History No 1 Miss A. weighed 164 pounds. One hour later after the Pomay treatment, she weighed 162 pounds. Loss—2 pounds.

Case History No 2 Mr. F. B. weighed 181 pounds. After Pomay treatment with the heat cabinet, he weighed 176½ pounds. Loss—4½ pounds.

Case History No 3 Miss H. weighed 160½ pounds. After Pomay treatment with heat cabinet, she weighed 158¾ pounds. Loss—1¾ pounds.

Case History No 4 Miss O. weighed 136 pounds. After Pomay treatment with tub bath at home, she weighed 133¾ pounds. Loss—2¼ pounds.

How to use Pomay—Rub Pomay all over body including face. Get into hot tub bath (or heat cabinet) for ten to fifteen minutes. Get out and wrap in blankets, go to bed and rest, relax and PERSPIRE for half an hour. Cool off gradually. Rub off and wash off Pomay. WEIGH YOURSELF! CONGRATULATIONS! The $10 jar contains enough for 7 treatments.

Reynolds Toiletries Shop—Street Floor, Fashion Store.

Reducing Movie today! Wednesday March 3

at 11 and 12 and 1 and 2 and 4 and 6

We are showing this stirring picture (with sound) so that you can see for yourself just how Pomay works. You will see the famous demonstration at the Plaza where model after model dropped ounces and pounds. We are showing the picture six times, so that everybody can see it. If the crowd is too great, stay on for the next showing. If possible, come at 11 or 12 o'clock. The place will probably be thronged with thousands at the afternoon showing. The movie is for everybody—men and women. *Fabric Center, Second Floor, Fashion Store—at the Top of the Staircase.*

WANAMAKER'S open tonight till 9

The Wanamaker half-page advertisement for Pomay in the *Wall Street Journal,* March 3, 1937, is typical of the copy employed by other stores:

"Pomay is presented as a mild, simple, safe compound which, when applied to the skin, induces copious perspiration at comparatively low temperatures. Its purpose is to reduce by perspiration (coupled with sensible dietary suggestions). Wanamaker's does not guarantee that you will lose a fraction of an ounce. We are not medical authorities. We are not chemists. We are merchants . . ."

The nation-wide advertising campaign for Pomay stimulated many inquirers to write to the Bureau of Investigation regarding the product.

According to a Wanamaker advertisement, "The Pomay theory is this: The abnormal storage of water is a concomitant of obesity. Fat oxidizes into water. Throw off the water and you throw off the fat. Wanamaker's presents this product for what it is worth. We don't know a single thing about water metabolism and its relation to obesity. . . If the theory of Pomay appeals to you: 'MORE perspiration in FEWER minutes at LOWER temperature with LESS effort'—come in and get a jar. . . . As a matter of fact, we were *enormously* impressed by the weight loss demonstration which we witnessed. We saw models drop 1 to 4 pounds in the space of an hour! (Of course, maybe they ate fudge sundaes and put it back on—we wouldn't know.)"

The Wanamaker advertisement advises:

"How to use Pomay—Rub Pomay all over body including face. Get into hot tub bath (or heat cabinet) for ten to fifteen minutes. Get out and wrap in blankets, go to bed and rest, relax and PERSPIRE for half an hour. Cool off gradually. Rub off and wash off Pomay. WEIGH YOURSELF! CONGRATULATIONS! The $10 jar contains enough for 7 treatments."

Because of the large number of inquiries received, an original specimen of Pomay ꝶ 7 was referred to the A. M. A. Chemical Laboratory for examination. The Laboratory's report follows:

LABORATORY REPORT

"The bottle contained approximately 100 grams of a milky white, smooth, petrolatum-like substance of neutral taste and practically odorless. It melted at body temperature. Under the microscope there was evidence of a product having a crystalline structure.

"Qualitative tests indicated the presence of petrolatum, salicylic acid, and a volatile substance (essentially menthol). Nitrogen compounds, sulfur, halogen and cholesterol were not found. Tests for estrogenic substances were not made.

"Qualitative determinations indicated the presence of the following ingredients in approximately the amounts indicated:

Petrolatum	86.6 per cent
Salicylic acid	6.6 per cent
Volatile oil (menthol)	5.3 per cent
Difference (unidentified material)	1.5 per cent

From the A. M. A. Chemical Laboratory report, it would seem that the principal ingredient of Pomay is petrolatum. The ordinary retail price for eight ounces of petrolatum is about 40 cents.

Mr. John Orr Young, president and treasurer of the Cutasy Laboratories, Inc., is also president of Young & Rubicam, Inc., an advertising agency. According to a report, "the principals are thoroughly experienced . . ." To which statement it might be added that any one capable of selling eight ounces of a mixture essentially petrolatum for $10 is decidedly experienced. The price that milady pays to perspire should work friend husband into a first-class sweat.

Correspondence

ZINC SULFATE FOR PREVENTION OF POLIOMYELITIS

To the Editor:—The excuse for this letter is the difficulty which the deleterious effects of an exploited remedy have in catching up with its recorded virtues.

My first opportunity to employ zinc sulfate for the prevention of poliomyelitis was for the protection of the mother of a little patient. The instructions with regard to material, instruments and technic, as recommended in the Peet article, were carefully carried out. The mucosa was shrunken with epinephrine and the zinc sulfate 1 per cent, sodium chloride 0.5 per cent, pontocaine hydrochloride 1 per cent solution was applied under visual control to the olfactory area. The young woman commented that she felt as if she were going to have her tonsils out again, but only after leaving did she begin to be distressed. She complained that the sensation in her nose was like red hot irons. It lasted through the night, the application having been made early in the morning, and the next day she still had a marked rhinorrhea. She refused a further application. I did not use 2 cc.; to me it seems that 1 cc. per nostril is an enormous amount to apply with an atomizer even in an adult nose.

If the treatment proves satisfactory and continues to be recommended broadly to the medical community, it seems to me that advice as to how to modify these unpleasant effects

should go with the recommendation for the treatment. I have had one case and that is all I am going to have until or unless the efficacy of the treatment and its essential harmlessness are more firmly established. I hope that the unpleasant effects may be modified or eliminated.

W. D. LUDLUM, M.D., Brooklyn.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CLIMATE IN ARTHRITIS

To the Editor:—I have been confined to bed for the past nine months with osteo-arthritis of the spine. I have discontinued practice and sold my home, with the idea of spending the summer in the north and then going to Florida to live in the fall. Is the climate of southern Florida suitable for a person who has arthritis or is the dampness injurious? My preference is for the west coast, say at Fort Myers or Sarasota, but I am told the humidity is marked, especially at night. Will you please advise me as to this?

E. E. EVANS, M.D., Gary, Ind.

ANSWER.—In general, patients with either atrophic (chronic infectious) arthritis or with hypertrophic (osteo-) arthritis feel better when they reside in a warm dry climate; hence Arizona and New Mexico are favorite states. Many arthritic patients have reported, however, that they were relieved of some of their symptoms by spending the winter in Florida or California, in spite of the humidity in these states. Unfortunately, only a few formal studies have been made on the relationship of arthritic symptoms to the various climates in this country. The factor of barometric pressure is apparently more important to an arthritic patient than that of humidity, temperature or atmospheric electricity, according to Rentschler, Vanzant and Rowntree (Arthritic Pain in Relation to Changes in Weather, THE JOURNAL, June 15, 1929, p. 1995), who studied the reactions of 367 patients with atrophic (not osteo-) arthritis to atmospheric and weather changes in Rochester, Minn., over the course of one year. Seventy-two per cent of the patients usually felt better when the barometer rose. However, 21 per cent of the patients reacted in an opposite manner and had fewer symptoms when the barometer fell. In 7 per cent no relationship between symptoms and barometric changes was noted.

It was impossible to demonstrate any definite or consistent relationship between humidity and arthritic pains, and it was concluded that the factor of humidity alone was not important, although it may be important in conjunction with other factors. The same conclusion was reached regarding changes in temperature or in atmospheric electricity; between them and a patient's symptoms no general parallelisms were noted. Even those patients who were most consistently affected by weather changes did not react to them with complete uniformity. One "arthritic weather prophet," for example, noted that changes in his symptoms paralleled changes in the curve of barometric pressure for about 77 per cent of the time; that is, he felt better as the barometer rose, but for 20 per cent of the time the relationship was reversed and he felt worse when the barometer rose and better when it fell.

It would seem, therefore, that the "advantages of a warm dry climate" may be due not to a warm temperature or low humidity but to the evenness of the climate and temperature, and freedom from significant variations in barometric pressure. Regardless of humidity, therefore, states where climate is warm but where storms and changes in barometric pressure are frequent may be less suitable for the arthritic patient than states where the weather is colder but more "even." With these facts in mind, and realizing the variability and individuality of different arthritic patients to react to their environment, some arthritic patients may be distinctly pleased and note relief of symptoms in Florida in spite of the humidity, and even in spite of storms and changes in barometric pressure. Others may feel no relief or may actually feel worse in spite of the warm temperatures.

It must not be forgotten that part of the relief which arthritic patients obtain during their visits to warm climates or to spas is undoubtedly due to the increased rest and relative freedom from worry and from traumatizing activity and to psychotherapy —"something is being done." Those who go to such places and merely "lie in the sun" may be sadly disappointed, for a stay in a high dry climate may be advantageous in some cases, but not without the use of other forms of therapy. As one Tucson climatologist and student of rheumatism frankly stated: "It must be understood that without the proper routine of living (a coordinated program of therapy) arthritis can continue as a sad and crippling disease even on the Arizona desert." (Holbrook, W. P.: Evaluation of Therapy in Chronic Atrophic Arthritis, *Ann. Int. Med.* **7**:457 [Oct.] 1933.)

Incidentally, one point is not quite clear; why it is necessary for the patient with "osteo-arthritis" of the spine to be confined to bed for nine months? Osteo-arthritis (using the term not in the radiologic sense but in a clinical sense, a term synonymous with hypertrophic, degenerative or senescent arthritis) rarely if ever produces symptoms severe enough to confine a patient to bed for long periods. It may produce real pains or sciatica, but these symptoms are usually not severe enough to confine victims to bed for as long as nine months. Perhaps the patient is affected with the osteo-arthritic changes secondary to late or severe rheumatoid arthritis of the spine. A review of the diagnosis seems in order.

COBRA VENOM IN ARTHRITIS

To the Editor:—Please give me information on the cobra venom treatment for arthritis? Where can I get it, and is it of any real value?

E. OSWALD VOYER, M.D., Hollywood, Calif.

ANSWER.—For a number of years various venoms, especially those of bees and snakes, have been used in the treatment of a variety of diseases. Their virtues have been less impressive to physicians than to laymen, who have long favored ointments of snake oil and the stings of bees in the treatment of "rheumatism." Of commercial preparations of different venoms, those of bees have been most widely used. Current sponsors of the use of bee venoms in the treatment of chronic arthritis and other rheumatic disorders are Beck, Mackenna and Baldermann.

In 1914 McCarty used crotalin, snake venom, in the treatment of several diseases including sciatica; no relief was obtained in the one case of sciatica so treated. Körbler reported an analgesic effect from the use of cobra toxin in one case of arthritis of a hip. Recently Macht commented on its analgesic effect in cases of tic douloureux, various neuralgias, chronic arthritis and other painful conditions not of malignant origin. According to Macht, the analgesic action of cobra venom is much like that of morphine and other opium narcotics. A general discussion of the chemical constitution, physiologic effects and therapeutic application of snake venoms has been presented by Kellaway, by Kirschen and by Burkhardt.

It will be seen, therefore, that no extensive scientific study has been made concerning the value of cobra (or bee) toxins in chronic arthritis. Many believe that such relief as arthritic patients may obtain from bee or snake venoms is probably derived from a reaction somewhat similar to that from foreign proteins (milk, typhoid vaccine). The value of snake venom as a superior coagulant is more definitely established. Sterile solutions of snake venom (Vipera russelli) in dilutions of 1:10,000 or more are effective as local applications to stop bleeding in patients who have hemophilia with or without hemophilic arthritis. Others regard the venom of Bothrops atrox (fer-de-lance) cheaper, more available and more effective than Russell's viper venom.

The subject is discussed by the following authors:

Beck, B. F.: Bee Venom Therapy: Bee Venom, Its Nature and Its Effect on Arthritic and Rheumatoid Conditions, New York and London, D. Appleton-Century Company, Inc., 1935; Arthritic and Rheumatoid Ailments: Considerations and Inferences Derived from Their Treatments with Bee Venom, *J. Med.* **17**: 62 (April) 1936.

Mackenna, F. S.: Bee Venom in Rheumatic Disorders, *Lancet* **2**: 1212 (Nov. 21) 1936.

Baldermann, G.: Bienengift gegen Rheumatismus, *Med. Klin.* **32**: 1368 (Oct. 2) 1936.

McCarty, M. T.: Asthma, Sciatica and Hystero-Epilepsy Treated by a New Method; with Case Reports, *Am. Med.* **20**: 658 (Oct.) 1914.

Körbler, J.: Schmerzlinderung bei Krebskranken durch Schlangengift, *Klin. Wchnschr.* **13**: 1185 (Aug.) 1934.

Macht, D. I.: Therapeutic Uses of Snake Venom, *M. Rec.* **144**: 537 (Dec. 16) 1936.

Kellaway, C. H.: Snake Venoms: I. Their Constitution and Therapeutic Applications: II. Their Peripheral Action, *Bull. Johns Hopkins Hosp.* **60**: 1, 18 (Jan.) 1937.

Kirschen, M.: Ueber das Kobratoxin un seine therapeutische Verwendung, *Wien. klin. Wchnschr.* **49**: 648 (May 22) 1936.

Burkhardt, A.: Die Behandlung der rheumatischen Erkrankungen mit schlangengift, *Deutsche med. Wchnschr.* **61**: 1159 (July 19) 1935.

McFarlane, R. G., and Barnett, Burgess: Hemostatic Possibilities of Snake Venom, *Lancet* **2**: 985 (Nov. 3) 1934.

McFarlane, R. G.: Treatment of Hemophilic Hemorrhage, *St. Bartholomew's Hosp. Rep.* **68**: 229-254, 1935.

Barnett, B. B.: Hemostatic Uses of Snake Venom, *Proc. Roy. Soc. Med.* **28**: 1469 (Sept.) 1935.

Peck, S. M.; Crimmins, M. L., and Erf, L. A.: Coagulating Power of Bothrops Atrox Venom on Hemophiliac Blood, *Proc. Soc. Exper. Biol. & Med.* **32**: 1525 (June) 1935.

CARBON TETRACHLORIDE POISONING

To the Editor:—Can you supply me with any information on carbon tetrachloride gas poisoning, including symptoms and treatment?

EDGAR C. SITES, M.D., Port Huron, Mich.

ANSWER.—Carbon tetrachloride may lead to at least three forms of poisoning for human beings: (1) contact dermatitis, (2) asphyxiation, which is brought about only by gross exposures and resembles chloroform anesthesia, and (3) acute and subacute poisoning. As little as 100 parts of carbon tetrachloride vapors per million parts of air represents the threshold of beginning danger for those exposed. Davis has listed the following symptoms as characteristic of acute and subacute carbon tetrachloride poisoning: slight headache, nausea, nervousness, mental confusion, loss of weight, secondary anemia, slight jaundice, chronic spasms of the muscles, necrosis of the liver, acidosis, phosphaturia and irritative nephritis, loss of consciousness, coma, and in severe cases death, visual disturbances such as blurred vision, color confusion and disturbances of near vision.

The same author suggests the following with reference to treatment: removal from contact with the substance, aeration —fresh air, oxygenated if necessary; alkalization with sodium carbonate, calcium carbonate or intravenous calcium gluconate; ingestion of levulose; dextrose and animal fats; tincture of digitalis to protect the heart; hexylresorcinol for kidney irritation; intravenous administration of physiologic solution of sodium chloride and dextrose or Fischer's solution.

More extended information may be found in the following publications:

Davis, P. A.: Carbon Tetrachloride as an Industrial Hazard, THE JOURNAL, Sept. 29, 1934, p. 962.

Smyth, H. F., and Smyth, H. F., Jr.: Safe Practices in the Industrial Use of Carbon Tetrachloride, THE JOURNAL, Nov. 21, 1936, p. 1683.

McGuire, L. W.: Carbon Tetrachloride Poisoning, THE JOURNAL, Sept. 17, 1932, p. 988.

MacMahon, H. E., and Weiss, Soma: Carbon Tetrachloride Poisoning with Microscopic Fat in the Pulmonary Artery, *Am. J. Path.* **5:** 623 (Nov.) 1929.

MANTOUX TEST IN TUBERCULOSIS

To the Editor:—I have been told that there have been recently some reports that the Mantoux skin test has activated tuberculous lesions in children under 8 years of age. It has been my impression from reading the available literature that the Mantoux skin test, especially given with the purified protein derivative tuberculin in graded dosage, was absolutely without danger to any individual. Will you please let me have the best opinion on this matter, as it affects the skin testing program in the primary schools.

M.D., Ohio.

ANSWER.—Observations made on many thousands of tuberculin tests administered by the Mantoux method have proved beyond doubt that the present standard dosage is without harm for both children and adults. When Koch's old tuberculin is employed, the first dose consists of 0.01 mg. Large numbers of workers use as the initial dose 0.1 mg. with no evidence of reactivation of previously existing tuberculosis. If there is no reaction to either of these initial doses, it is still entirely safe to administer a full milligram. In fact, some workers use a milligram as the initial and only dose in their testing program and report no ill effects. Purified protein derivative has been employed in a two-dose test (the dosage differs from old tuberculin but the directions accompany each package) on large numbers of children and adults with no harm whatever; in fact, its safety was carefully, accurately and definitely determined before it was placed on the market. Already Long has prepared an intermediate single dose test of purified protein derivative which is also harmless.

In 1935 more than 1,124,363 tuberculin tests were administered through tuberculosis associations. It is probable that an equal number or even more tests were administered in the offices of physicians. These figures indicate the extensive use of the test.

Statements to the effect that the test has activated tuberculous lesions in children under 8 years may have any one of several sources. There are still physicians who confuse the intracutaneous tuberculin test of Mantoux with the old subcutaneous test. In the latter, large doses of tuberculin were administered that were sometimes capable of reactivating lesions.

It seems more probable that the source of the statements is an organization in this country devoting its entire time and effort to opposition of good health measures, such as vaccination against smallpox, immunization against diphtheria, and the tuberculin test. Members of this organization are misinformed or malicious in intent. They make numerous statements that are false, such for example as that the milk of cows which have had the tuberculin test is very dangerous for infants. In an attempt to alarm the public they cite cases in a most indefinite manner of persons who have lost their arms because of positive tuberculin reactions; they state that many children have become tuberculous and have died as a result of the tuberculin test. When one attempts to locate the cases so reported, they are never to be found and usually no one in the community or even the family knows of the source of the tale. These persons attempt to leave the public with the impression that tuberculin contains living tubercle bacilli, when in reality whether it is Koch's old tuberculin or purified protein derivative it contains no tubercle bacilli either alive or dead.

On occasions, these persons have been known to distribute at the doorsteps pamphlets containing their propaganda just before a tuberculin testing program is to be initiated. This attempt to destroy the testing program may meet with a considerable degree of success. It usually reduces the percentage of consents for tuberculin testing of both children and adults. While it appears successful temporarily, it also creates intense interest in the tuberculin test, so that actual facts may be presented to an alert public.

Probably one thing did more to hasten the tuberculin testing program among cattle than the demonstrations by the opposition in a few states such as Iowa. The "cow testing war" rated headlines in many of the large daily newspapers, and most papers carried some items concerning it. The absurd propaganda was exposed and the public convinced that it was definitely detrimental. Therefore the propaganda that is being disseminated in the correspondent's community, if traced, will probably hasten the day when the test will be universally accepted.

ALOPECIA TOTALIS

To the Editor:—A white woman, aged 28, gives the following history: At 2 years of age she severely burned her right arm with hot coffee. She remembers that at the age of 4 there was an alopecia totalis but cannot recall how long prior to that time it existed. She was treated the next three years without results. Her mother was then advised by an Indian woman to apply tincture of iodine to the scalp. This was done every other day, blistering the skin severely. Finally (time unknown), coarse bristles appeared over the scalp and eventually the hair became long. There was an area about the temples, extending over the occipital protuberance, on which the hair never regrew. Approximately eight years ago the patient suffered what was diagnosed as a nervous breakdown brought on by overwork. Since this was associated with a marked loss of hair, she was advised to cut off the remainder. During this period she was treated by a specialist for eight months, and under his supervision hair once more appeared. She was told, however, that she could never hope to retain her hair unless treatment was continued without interruption. This treatment consisted of local applications applied by the patient and some form of internal medication. Owing to financial conditions she was unable to continue under this regimen. The alopecia areata had never entirely cleared up even under this therapy. About three and a half years ago the patient married, and almost immediately the hair began to fall out rapidly. A year and a half later she became pregnant, and during the second month of gestation the hair came in all over the scalp, even over the former bald spots. These hairs were fine and silky and the growth was heavy and long. After the child became 3½ months old, every hair on the body fell out during a period of two days. Prior to this time she had such a heavy growth of hair on her legs that she was embarrassed when appearing in public in a bathing suit. At the time stated, however, scalp hair, eyelashes, eyebrows, axillary, pubic, and body hair disappeared entirely, and the patient began to gain weight and once more became exceedingly nervous. There was a marked pitting edema of both lower extremities. The menses had not yet made their reappearance. The basal metabolic rate was low, the Kahn test was negative, and the blood count presented no variation from the normal. She was given desiccated thyroid internally, and a maintenance dose of approximately 5 grains (0.3 Gm.) daily was established. Under this therapy she lost about 20 pounds (9 Kg.), the edema disappeared, and the menses recurred with normal rhythm. She has continued along this line for the past year and a half. There has been no local treatment. She has developed a scanty growth of hair in the axillary and pubic regions and a very fine, almost imperceptible, downy growth on the scalp. The eyebrows and eyelashes, which are sparse, at first were colorless but now they are becoming pigmented. Can you give any information as to etiology, further therapy and prognosis?

M.D., Illinois.

ANSWER.—The exact causation of alopecia totalis is not known. There are three popular theories as to its origin—the neuropathic, the parasitic, and the toxic—one or more factors being involved in the individual patient. In the case cited there is a definite history of nervous shock preceding the alopecia in childhood as well as the attack at 20 years of age. The regrowth of hair during pregnancy has been reported by Meacham (*Brit. J. Dermat.* **24:**272, 1912). The postpartum recurrence of the alopecia probably is due to an endocrine dysfunction. Sabouraud (*Ann. de dermat. et syph.* **4:**140, 1913) believes that alopecia areata is connected with hyperthyroidism and ovarian disease.

In this case, treatment must consist of local and internal medication. The local treatment consists of repeated blisterings of the scalp, using stimulating preparations such as alcohol, ether, tincture of iodine, phenol, resorcinol, tar, sulfur, mercurials, croton oil, cantharidal collodion, or 30 per cent chrysarobin, either singly or in combination. Phototherapy has been used with good results by Finsen, Jersild, Ormsby, Fox and others. Internally, preparations of iron, quinine, cod liver oil, phosphorus, arsenic or strychnine are indicated if the patient's

general health is below par. Pilocarpine nitrate, from one-eighth to one-fourth grain (0.008 to 0.016 Gm.) daily or pilocarpine hydrochloride, one-eighth grain hypodermically have been used with success. Thyroid medication has given good results at times. Certain pituitary preparations have been used with varying degrees of success.

The prognosis varies with the age of the patient and with the extent of baldness. Relapses are frequent, but in young persons complete recovery usually occurs except in the universal cases. Ormsby states that "there is hope . . . even when the downiest and thinnest growth . . . can be appreciated." In alopecias of long standing in which there is atrophy of the hair follicles, the baldness may be permanent.

COATED TONGUE

To the Editor:—I have had several patients complain of "coated tongue." In these patients there was no marked dehydration or prostration. Some were troubled with constipation and others were not. In the majority of those who were troubled with constipation, purging and laxatives had no effect on the condition of the tongue. Will you make some remarks about this? What would be a good remedy in cases in which no cause can be found?

M.D., Alabama.

ANSWER.—The condition of the dorsum of the tongue can be described as normal, coated, smooth (marginal or general), scrotal (smooth or coated), geographic or diseased. The term "coated tongue" describes an abnormal presence of terminal cells on the filiform papillae. These cells are usually degenerating.

The normal-appearing tongue varies somewhat with the individual; the abnormal is caused wholly or in part by such factors as trauma (dentures), trophic causes, local disease (fungi, tuberculosis, syphilis), nutritional deviations (food, vitamins, fluids), systemic disease, upper and lower respiratory infections, oral sepsis, excess smoking, and the condition of the intestinal tract.

A British expression says that "the tongue reflects the condition of the gut," an expression which is incompletely true. It has been found that the condition of the mucosa of the tongue varies directly with the quantity of free acid in the gastric contents: heavily coated tongues are often associated with hyperchlorhydria or normochlorhydria, the partly smooth (marginal) or bald tongues with hypochlorhydria or achlorhydria. (A notable exception is the coated tongue often accompanying a gastric neoplasm and its achlorhydria.) It is possible that another modifying, intrinsic, factor may be associated with the degree of chlorhydria.

Treatment of a possible cause is to be preferred to the use of such superficial methods as oxidizing ablutions, brushing or scraping. It is suggested that every effort be made to rule out constitutional, regional or local disease as a cause of coated tongue. A regulation of personal habits may be of help, as well as a sustained regulation of every apparent disorder of the gastro-intestinal tract. To accomplish this a satisfactory fluid intake and an adequate food and vitamin ingestion are necessary. The most important aid to the entire tract may be a functional regulation, especially of the frequently occurring spastic colitis, by such means as a bland diet, sedatives, emollients, relaxation, and a regulation of bowel habit.

EPIDURAL INJECTIONS FOR PRIAPISM

To the Editor:—In the January 23 issue of THE JOURNAL, on page 322, the use of epidural injections for priapism is advised. I will appreciate your giving to me the technic of the procedure or advising me where it can be found.

M.D., California.

ANSWER.—The technic of epidural injections for priapism is exactly that followed by Valentine and Townsend for frequency of urination (*M. Rec.* **64**:486 [Sept. 26]). In cases of priapism 60 cc. of physiologic solution of sodium chloride is injected and at times procaine hydrochloride is added to the saline solution in the proportion of 10 cc. of procaine to 80 cc. of saline solution. Cases treated by this method are reported by Huhner in the *Medical Journal and Record* (**132**:521 [Dec. 3] 1930) under the title of "Some Unusual Cases of Priapism."

The technic as described by Valentine and Townsend is briefly as follows: "The patient may be placed on either side, most comfortably on a table sufficiently high to render excessive stooping of the operator unnecessary. The skin over the sacrum is thoroughly scrubbed with green soap and water, then wiped with sterile pledgets of alcohol, but not dried. In order to find the point of puncture, the left palm is pressed upon the sterilized skin, with the fingers well extended and held closely together. They are passed down the skin over the sacral spinous processes until the last perceptible one of these is felt under the pulps of the left index and middle fingers. These are then slightly separated and pushed downward until each of them presses an osseous tubercle. The skin is firmly stretched with the same fingers over these tubercles; between them is the space to be punctured. The needle is taken between the right thumb and middle finger, the tip of the index-finger resting upon the attachment of the needle. So held, at an angle of about 40 degrees to the sacral curve, it is thrust through the space of skin tensely stretched by the left fingers. An instant later the right fingers receive the sensation that is imparted when an instrument is tested by means of tense drumhead. This is produced by the needle's point traversing the posterior-inferior sacral obturating membrane. The shaft of the needle is then depressed about 20 degrees and the left middle fingers raised from the skin, and the left index is pressed upon the point of puncture to steady the needle and the tissues. In this position the needle is cautiously pushed up into the sacral canal. If each step of the technic has been sedulously followed, and no gross abnormality exists, the needle can be entirely inserted without touching the periosteum of any part of the sacral canal. The injection is made as follows: The left thumb and index-finger then firmly hold the needle's attachment, while the syringe is attached by the right hand. Nine tenths of the contents of the syringe are then slowly injected into the sacral canal without moving the needle. Then, still slowly injecting, the needle is gradually withdrawn until its point is just beneath the skin. The last drop or two of the solution are then forced out, forming a little bulla at the point of insertion. If these precautions are carefully observed, there will not be even a slight oozing of blood from the puncture."

TREATMENT OF SYPHILIS IN PREGNANCY

To the Editor:—In the past seven years I have been treating a woman for syphilis. She has remained Wassermann fast. Two years ago I told her to become pregnant, continuing treatment until term. I delivered her of a normal boy. The placenta, cord blood and maternal blood at this time were negative. I gave her two courses of neoarsphenamine and a bismuth compound following delivery. I gave up treatment because it seemed to me that her health was becoming impaired as a result of so much medication. She remained Wassermann negative. Her baby now is 17 months old. March 2 a Wassermann test on her was doubtful. She wants to have another baby. In view of the condition of her veins I have decided to let her have her way and give her eight ampules of bismuth arsphenamine sulfonate during each of her trimesters. Am I doing the right thing even if the next Wassermann reaction is positive?

M.D., Michigan.

ANSWER.—It would seem that the correspondent is on safe ground to permit another pregnancy. Not only is antisyphilitic treatment during the pregnancy probably not necessary but from the implied large amount of treatment that the patient has received it would probably be unwise.

SENILE ARTERIOSCLEROSIS AND BRAIN DEGENERATION

To the Editor:—A man, aged 72, who has never beeen seriously ill and has never had any operations, during the past five years has slowly been developing a very unstable equilibrium. When he attempts to sit in a chair he misses the seat and sits on the arm or on the floor. He falls frequently with no apparent cause. He never has lost consciousness or presented any signs or symptoms that would simulate a cerebral accident of any kind. His voice is getting huskier and he reacts very slowly to questions. Although he seems to understand all questions asked it takes as long as five or ten mintues before he answers them. He is well oriented as to time, place and person. At times he thinks his relatives are against him and so he hides his wallet or other possessions. He cries easily. When told not to do something he does it when no one is looking. He laughs at times for no apparent reason. Examination is essentially negative. The blood pressure is 150 systolic, 80 diastolic. The pulse rate is 84. The urine and blood count are normal. The eyegrounds are normal. He has a very good appetite but is slowly losing weight and strength. I have diagnosed the case as a depressed type of manic depressive psychosis, probably on an arteriosclerotic basis. The patient is taking solution of potassium arsenite beginning with 2 drops three times a day and slowly increasing to 12 drops. Is there any further medication that might be used and is solution of potassium arsenite contraindicated?

J. F. HATTENBACH, M.D., Lakewood, Ohio.

ANSWER.—Both the mental and the somatic symptoms in this case are probably due to senile arteriosclerosis and brain degeneration. The speech difficulty and tendency to unmotivated laughing and crying may be a feature of so-called pseudobulbar palsy caused by sclerotic changes in the brain stem. If the patient has not had any previous attacks of depression or mania, it is highly improbable that he now has a depressed type of manic-depressive psychosis. It is probably only a beginning ordinary senile psychosis. Both depression and delusions are common features. Small doses of solution of potassium arsenite will probably do no harm. It is not likely that any drug treatment will be of any avail except for the relief of symptoms as they arise. Theoretically vasodilators,

such as iodides in small doses, should be beneficial, but experience with such drugs in senile mental disease has been disappointing.

POSSIBLE RELATIONSHIP BETWEEN USE OF METALLIC SUBSTANCES AND X-RAY SKIN

To the Editor:—I am anxious to find out if there is any literature substantiating what seems to be a general belief among doctors that the metal salts will sometimes break down tissue previously exposed to too big dose or repeated x-ray exposure. To present the question more clearly, I give a brief synopsis: X-ray exposure of the hand occurred in December 1917. A slight dermatitis followed, which healed in two or three weeks. Nov. 30, 1918, eleven months after exposure, the tissue of the hand broke down and sloughed severely after the hands had been washed in mercury bichloride solution excessively four or five days previous to the breakdown. Please give me any references that support the contention that mercury bichloride caused the sloughing.

M.D., Oklahoma.

ANSWER.—So-called x-ray skin often has a low toleration for insult or injury. Minor injuries may result in indolent ulcers. The application of any one of many chemicals in a strength sufficient to be an irritant may cause ulceration. This is more likely to occur when the application is in the form of an ointment. A strong solution of mercury bichloride might cause ulceration of such skin, simply because of the irritation and not because of any specific action of mercury. Excessive scrubbing with soap and water even might cause ulceration in some cases. The only literature on this subject with which we are familiar is contained in the standard textbooks, such as G. M. MacKee's X-Rays and Radium in the Treatment of Diseases of the Skin, G. C. Andrews' Diseases of the Skin, Otto Glasser's The Science of Radiology and Caldwell and Russ's X-Ray and Radium Injuries.

DETERMINATION OF STATUS OF SYPHILIS IN PATIENT

To the Editor:—A man, aged 26, would like to marry. After three years of uninterrupted treatment the Wassermann and Kahn reactions remain positive. His first Kahn test was found positive after a very thorough examination in which no physical defects of note were disclosed. At the hands of several physicians he has been given neoarsphenamine, bismuth, arsphenamine sulfonate, mapharsen, yellow mercurous iodide, mercuric salicylate, mercury by inunction, potassium iodide by mouth, potassium bismuth tartrate, iodobismitol and hyperpyrexia treatments (five hours of 106.5 F. body temperature, repeated three times). At present he is having a rest period for the first time. The spinal fluid has never been tested. Will you kindly advise the course to be taken with this man? Should marriage be permitted? M.D., Alabama.

ANSWER.—The patient has apparently been treated vigorously because of the persistently positive flocculation tests, but the data presented would indicate that no effort has been made to determine why the tests have remained positive. In other words, before endeavoring to determine the significance of the persistently positive blood tests it is necessary to determine the status of the syphilis. The spinal fluid should be examined by all means and a clinical search should be made for evidence of cardiovascular syphilis or signs of other visceral or mucous membrane syphilis. If the inquiry had included information as to the number of injections and the amounts of the various remedies given to this patient, suggestions could be offered for the subsequent treatment. The patient should not marry until the status of the syphilis is determined by examination of the spinal fluid and the viscera.

DETERMINATION OF BLOOD CHEMISTRY

To the Editor:—Kindly advise me as to what would be a low priced, fairly accurate apparatus for the determination of blood nonprotein nitrogen. ROY G. S. DOUGALL, M.D., Cobleskill, N. Y.

ANSWER.—There is no simple, yet entirely satisfactory, method of determining the different constituents of the blood. If any considerable amount of this work is to be done, it would be advisable to follow the procedure that may be found in any good work on physiologic chemistry. Practical Physiological Chemistry by Hawk and Bergeim and Practical Physiological Chemistry by S. W. Cole contain clear descriptions of the methods. The equipment is not particularly expensive but the method is rather time consuming and requires a fair amount of chemical technic and a space that may be devoted to laboratory purposes.

Fairly accurate substitutes are offered in the form of fixed color standards, with the appropriate equipment for preparing the blood, supplied in convenient form. There are several such devices. The LaMotte apparatus, made in this country, and the Helige apparatus, made in Germany, seem to enjoy popularity. Any reliable scientific instrument dealer can supply prices and information concerning these devices.

GONADOTROPIC PRODUCTS

To the Editor:—I have been treating cases of undescended testes with follutein at a cost of $3 for each thousand rat units. Recently I have learned that antophysin, another anterior pituitary-like product is obtainable at $2 for a similar amount and 5,000 units of A. P. L. (Ayerst, McKenna and Harrison) may be obtained for $6. As treatment for this condition is prolonged, such a variance in price becomes a matter of importance. Will you kindly answer these questions: 1. Are antophysin, follutein and A. P. L. of equal potency and unit value? 2. Which are Council accepted? 3. Why such a marked difference in price?

M.D., New York.

ANSWER.—1. There are no known actual comparative assays of antophysin, antuitrin-S, follutein and A. P. L. So far as available data are concerned they are probably nearly equivalent, rat unit for rat unit, and the cheapest may be chosen.

2. None are as yet Council accepted but all are now under consideration.

3. All the products except A. P. L. are licensed under a patent held by the manufacturers of antophysin. This probably accounts for the differences in price.

PURPURA IN PREGNANCY

To the Editor:—Would chronic purpura haemorrhagica be an indication for the interruption of pregnancy? If so, what would be the best method for intervention? The patient, who is 25, had a severe postpartum hemorrhage following spontaneous delivery of a living full term child fourteen months ago. This necessitated packing of the uterus, repeated transfusions and subcutaneous injections of snake venom. She was dangerously ill for a month. Would intervention now or labor be more dangerous from the standpoint of the mother's life? If pregnancy should be allowed to continue to term, what antepartum and postpartum precautions would you advise? Is subsequent sterilization of the patient indicated, and if so what would be the best method?

M.D., New Jersey.

ANSWER.—Purpura haemorrhagica is always a treacherous condition when complicated by pregnancy. If the patient is in her first trimester the immediate interruption of pregnancy combined with sterilization will probably offer the best prognosis. This procedure should be carried out by abdominal hysterotomy in order that the sterilization may be performed at the same time. After midpregnancy the patient should be allowed to continue to term. A normal delivery can be awaited, but in the event that conditions are ideal an elective low or cervical cesarean section and sterilization can be carried out under local anesthesia. Should normal delivery occur, sterilization can be carried out at a later date by laparotomy. A most important part of the treatment is that the patient receive a minimum of 500 cc. of whole blood about twelve hours prior to an operative procedure. Should the patient go into labor, transfusion should be performed immediately. Preparations should be made for the treatment of postpartum hemorrhage in the event that normal delivery occurs.

PSEUDO-ICTERUS NOT DUE TO HENNA POISONING

To the Editor:—I should like to obtain information on the subject of henna poisoning. I have under my care a woman of 34 whose chief complaint is excessive sweating. Among other pathologic conditions she presents yellow sclerae. The blood serum is intensely yellow; the icteric index by the acetone method is 20. The pigment is not bilirubin or carotene. There is no history of dinitrophenol ingestion. The patient has red hair and has used "henna rinses" for several years. A consultant has suggested the possibility of henna poisoning. M.D., New York.

ANSWER.—Henna is considered perfectly harmless. Should the hair dyeing have anything to do with the condition reported it would have to be due to some added chemical. Trinitrophenol (picric acid) is one substance that might be suspected as being the cause of the pseudo-icterus. If this is present in the system in considerable quantity, it can be detected in the urine in the form of picramic acid.

IRON AMMONIUM CITRATE IN ANEMIA

To the Editor:—I would greatly appreciate any information you may give me regarding the use of iron ammonium citrate for the new-born anemic infant. I should like to know the correct dosage. Please omit name. M.D., California.

ANSWER.—The following schedule of dosage of iron and ammonium citrate may be stated for infants and children:

Age	6 months, weight 15 pounds	0.10 Gm.
Age	18 months, weight 25 pounds	0.20 Gm.
Age	3 years	0.30 Gm.
Age	5 years	0.50 Gm.

Even larger doses may be given in accordance with the modern tendency for large and liberal doses of iron medication.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 28. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: Phoenix, Oct. 5-6. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Basic Science.* Little Rock, Nov. 1. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, Dec. 21-22. Sec., Dr. L. J. Kosminsky, Texarkana. *Medical (Eclectic).* Little Rock, Dec. 21. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: Sacramento, Oct. 18-21. Sec., Dr. Charles B. Pinkham, 420 State Office Building, Sacramento.

COLORADO: Denver, Oct. 5. Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Oct. 9. *Prerequisite to license examination.* Address State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical (Regular).* Hartford, Nov. 9-10. *Endorsement.* Hartford, Nov. 23. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Medical (Homeopathic).* Derby, Nov. 8-9. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Dover, July 12-14. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Dec. 27-28. *Medical.* Washington, Jan. 10-11. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, Nov. 15-16. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, Oct. 12-13. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Honolulu, Oct. 11-14. Sec., Dr. James A. Morgan, 48 Alexander Young Building, Honolulu.

IDAHO: Boise, Oct. 5. Commissioner of Law Enforcement, Hon. J. L. Balderston, 205 State House, Boise.

ILLINOIS: Chicago, Oct. 19-21. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

IOWA: *Basic Science.* Des Moines, Oct. 12. Sec., Dr. W. L. Strunk, Decorah.

KANSAS: Topeka, Dec. 14-15. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. 7th St., Kansas City.

KENTUCKY: Louisville, Dec. 7-9. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Portland, Nov. 9-10. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical (Regular).* Baltimore, Dec. 14-17. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Medical (Homeopathic).* Baltimore, Dec. 14-15. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 8-10. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Lansing, Oct. 13-15. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Oct. 5-6. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Oct. 19-21. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: *Reciprocity.* Jackson, Dec. Asst. Sec., State Board of Health, Dr. R. N. Whitfield, Jackson.

MISSOURI: Kansas City, Oct. 20-22. State Health Commissioner, Dr. Harry F. Parker, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 5-6. Sec., Dr. S. A. Cooney, 205 Power Block, Helena.

NEBRASKA: *Basic Science.* Lincoln, Oct. 5-6. *Medical.* Lincoln, Nov. 15-16. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, Nov. 1-3. Sec., Dr. John E. Worden, Carson City.

NEW JERSEY: Oct. 19-20. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 11-12. Sec., Dr. Le Grand Ward, Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Oct. 4-7. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* Raleigh, Dec. 6. Sec., Dr. B. J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 4-7. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OHIO: Columbus, Dec. Sec., State Medical Board, Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, Dec. 8. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Portland, Nov. 20. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Philadelphia, Jan. Sec., Board of Medical Education and Licensure, Dr. James A. Newpher, 400 Education Bldg., Harrisburg.

RHODE ISLAND: Providence, Oct. 7-8. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, Nov. 9. Sec., Dr. A. Earle Boozer, 505 Saluda Avenue, Columbia.

SOUTH DAKOTA: Pierre, Jan. 18-19. Director of Medical Licensure, Dr. B. A. Dyar, Pierre.

TEXAS: Wichita Falls, Nov. 8-10. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bldg., Dallas.

VERMONT: Burlington, Feb. 8. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 8-10. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WEST VIRGINIA: Charleston, Nov. 8-10. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: Madison, Jan. 11-14. Sec., Dr. Henry J. Gramling, 2203 S. Layton Blvd., Milwaukee.

WYOMING: Cheyenne, Oct. 18. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

SPECIAL BOARDS

Examinations of *Special Boards* were published in THE JOURNAL, September 25, page 1066.

West Virginia July Report

Dr. Arthur E. McClue, secretary, West Virginia Public Health Council, reports the oral and written examination held at Fairmont, July 12-14, 1937. The examination covered 11 subjects and included 110 questions. An average of 80 per cent was required to pass. Thirty-six candidates were examined, 35 of whom passed and one failed. Twenty physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1934) 87.8, (1935)	85.6
Howard University College of Medicine		(1930)	80.3
Northwestern University Medical School		(1937) 84.1,	88.5
Rush Medical College		(1936) 89, (1937) 86.5, 87.1, 87.8,	88.9
University of Louisville School of Medicine		(1935) (1936) 86.9, 86.9	86.4,
Tulane University of Louisiana School of Medicine		(1936)	87.8
University of Maryland School of Medicine and College of Physicians and Surgeons		(1935) 86.9, (1936) 85.1,	89.4
Ohio State University College of Medicine		(1935) 82.1, (1936)	86.3
Jefferson Medical College of Philadelphia		(1935) 86.9, 90.3, (1936) 89.2	86.5,
University of Pittsburgh School of Medicine		(1933) (1936) 86.7	89.7,
University of Tennessee College of Medicine		(1936)	84.7
Medical College of Virginia		(1936) 87.2, 87.4, 87.6, 88.7, (1937) 86.4	85.4,
University of Virginia Department of Medicine		(1934) (1936) 87.1, 87.2	88.3,

School	FAILED	Year Grad.	Per Cent
Meharry Medical College		(1932)	71

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
College of Medical Evangelists		(1934)	Penna.
Rush Medical College		(1896) Illinois, (1933)	Alabama
University of Louisville School of Medicine		(1931), (1934)	Kentucky
Louisiana State University Medical Center		(1935)	Louisiana
Tulane University of Louisiana School of Medicine		(1926)	Louisiana
Johns Hopkins University School of Medicine		(1934)	Maryland
University of Maryland School of Medicine and College of Physicians and Surgeons		(1926), (1935. 2)	Maryland
St. Louis University School of Medicine		(1926)	Ohio
Starling-Ohio Medical College		(1914)	Ohio
Western Reserve University School of Medicine		(1936)	Ohio
University of Pennsylvania School of Medicine		(1930)	Penna.
Vanderbilt University School of Medicine		(1934), (1936)	Tennessee
Medical College of Virginia		(1908)	Virginia
University of Virginia Department of Medicine		(1935)	Virginia
Marquette University School of Medicine		(1936)	Wisconsin

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Duke University School of Medicine		(1933)	N. B. M. Ex.

South Carolina June Report

Dr. A. Earle Boozer, secretary, State Board of Medical Examiners of South Carolina, reports the written examination held at Columbia, June 22-24, 1937. The examination covered 17 subjects and included 70 questions. An average of 75 per cent was required to pass. Forty-three candidates were examined, 42 of whom passed and one failed. Eleven physicians were licensed by reciprocity and three physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Indiana University School of Medicine		(1936)	79.4
Medical College of the State of South Carolina		(1937)	76.9,
77.1, 77.6, 77.8, 77.8, 78, 78.4, 78.5, 78.9, 79, 79.8, 80.1, 80.3, 80.3, 80.5, 80.6, 80.8, 81.3, 81.5, 81.5, 81.6, 81.6, 82.9, 83.3, 83.3, 83.5, 83.5, 84.5, 85.3, 85.5, 85.8, 85.8, 86, 87.1, 87.3, 88.1, 88.1, 88.3, 88.9, 89.8, 90.3			

School	FAILED	Year Grad.	Per Cent
Medical College of the State of South Carolina		(1937)	73.5

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Emory University School of Medicine		(1936)	Georgia
University of Georgia Medical Department		(1926)	Georgia
University of Georgia School of Medicine		(1934, 2)	Georgia
Tulane University of Louisiana School of Medicine		(1936)	Louisiana
Johns Hopkins University School of Medicine		(1933)	N. Carolina
University of Maryland School of Medicine		(1906)	Maryland
University of Nebraska College of Medicine		(1934)	Georgia
University of Tennessee College of Medicine		(1936)	Tennessee
Vanderbilt University School of Medicine		(1935)	Tennessee
Medical College of Virginia		(1931)	Virginia

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Duke University School of Medicine		(1932), (1935)	N. B. M. Ex.
University of Pennsylvania School of Medicine		(1934)	N. B. M. Ex.

Book Notices

Pediatric Dietetics. By N. Thomas Saxl, M.D., F.A.C.P., F.A.A.P., Associate and Lecturer in Diseases of Children, New York Post-Graduate Medical School, Columbia University. Foreword by Adolph G. DeSanctis, M.D., F.A.A.P., Director of Pediatrics at the New York Post-Graduate Medical School and Hospital, Columbia University, New York. Cloth. Price, $7. Pp. 565, with 59 illustrations. Philadelphia: Lea & Febiger, 1937.

While much has been written on infant feeding in concise handbooks and as a part of general textbooks on pediatrics, few books have presented the subject of pediatric dietetics separately in one volume. This book presents that material in a lucid and modern fashion. The volume is organized along three major divisions. In the first part of the book the author epitomizes the mechanics and chemistry of digestion during infancy and childhood, the various forms and types of food, their distribution, qualitative and quantitative compositions and how they are employed in the dietetic management of the infant and child. The rôles of vitamins and minerals in metabolism are also concisely summarized. The second part of the book is concerned with infant feeding, both maternal and artificial. The third section considers the diet of infants and children in various diseases. Many specialists in their respective fields have collaborated with the author in this section. Finally, the appendix contains height and weight tables, recipes, general dietary suggestions, classified food tables, mineral and vitamin tables and a well selected bibliography to complement each section of the text. The book is well organized and carefully edited, and it is a storehouse of dietetic data useful in the everyday practice of pediatrics. The author has courageously considered the accepted proprietary foods in his discussion without bias. This has added to the value of his book. Certain special topics are not in keeping with the high quality of the rest of the book. The author should give this phase of his text more critical editing when the book is revised. In its present form, any physician will find this volume a useful addition to his medical library. It is comprehensive in scope, practical in its presentation and clearly and concisely stated. It reflects a sincere desire of the author and his collaborators to present the practicing physician with a useful source of data by which he may successfully meet the nutritional needs of the infant and child in health and in disease.

Maladies infectieuses (deuxième série): Leçons cliniques professées à l'Hôpital Claude-Bernard. Par A. Lemierre, professeur à la Faculté de médecine de Paris. Paper. Price, 55 francs. Pp. 309, with 15 illustrations. Paris: Masson & Cie, 1937.

This book contains seventeen clinical lectures based on cases illustrating various forms of infection. There are detailed, well planned lectures on cases of septicemia caused by the Pfeiffer bacillus, B. proteus, B. perfringens and B. funduliformis, on different kinds of ulceronecrotic pharyngostomatitis, on kala-azar, on malaria in Paris, on Hodgkin's disease with the undulant type of fever, and on other infectious manifestations. This is the second book by the author of clinical lectures on infectious diseases.

Common Skin Diseases. By A. C. Roxburgh, M.A., M.D., B.Ch., Physician in Charge of the Skin Department and Lecturer on Diseases of the Skin, St. Bartholomew's Hospital, London. Fourth edition. Cloth. Price, 15s. Pp. 401, with 173 illustrations. London: H. K. Lewis & Co., Ltd., 1937.

This edition is characterized by numerous and excellent illustrations, an index of preliminary diagnoses grouped according to the essential lesions, suggestions for treatment in crystallized form which are proved and practical, and short, concrete, classic descriptions of the various diseases, all of which make for a vivid and noteworthy contribution to the General Practice Series. The book has been written for the general practitioner and the medical student, and the absence of numerous references and the inclusion of concrete suggestions for treatment should insure its popularity. Particularly worthy of favorable comment is the author's avoidance of lengthy discussions of the treatment of those dermatoses for which dermatologists have little to offer. The book is highly recommended to the medical student and the general practitioner, for whom it was written. Many dermatologists would do well to have it at hand for ready reference.

Lehrbuch der Nervenkrankheiten in 30 Vorlesungen. Von Robert Bing, ordentlicher Professor an der Universität Basel. Fifth edition. Paper. Price, 25 marks. Pp. 618, with 207 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1937.

The author continues the custom employed in his previous editions of presenting the subject matter in a series of thirty "lectures." The material is divided as follows: three chapters on diseases of the peripheral nerves, two on the dyskinesias, three on muscular dystrophies and atrophies, one each on multiple sclerosis and on diffuse diseases of the spinal cord, four chapters on syphilis of the central nervous system, one each on arteriosclerosis of the nervous system, on encephalomalacia and on aphasia, one chapter (of only thirty-five pages) on tumors, inflammation and circulatory disturbances of the brain and the meninges, one on diseases of the cerebellum, two on congenital nervous diseases, two on "dysglandular syndromes," one chapter each on diseases of the vegetative nervous system and on epilepsy, three on the psychoneuroses, and one on the cephalalgias. Despite a certain prolixity of style, the author's presentation is generally clear and readable. Most of the data are competently handled; the chapters on diseases of the peripheral nerves, on the neuromuscular disorders and on aphasia are admirable. This edition, however, continues the two main defects of the previous ones: a dogmatic, oversimplified nosology and rather cursory and ofttimes incomplete sections on therapy. For example, the classification of brain tumors is didactically disposed of in two pages, whereas in discussing the treatment of dementia paralytica the author recommends fever therapy and mercury rubs but fails to mention either bismuth compounds or tryparsamide. Perhaps the weakest portion of the work is that on the psychoneuroses, in which the author follows the classifications and the treatment of the preanalytic schools and excludes Freud, Jung and Adler even from the bibliography. In other respects the work is a fairly complete summary of the continental views on neurology and as such may be of interest to specialists in the field.

Baby Epicure. Appetizing Dishes for Children and Invalids. By Elena Gildersleeve. Cloth. Price, $1.75. Pp. 141. New York: E. P. Dutton & Co., Inc., 1937.

The modern tendency in the feeding of infants and children is to broaden the diet to include a greater variety of foods. Nevertheless there seem to be more and more children who have to be made to eat. The cause may lie in failure to make the foods attractive. In this book, many dishes have been suggested that will do for the entire family and, particularly, will provide the child with a varied and wholesome diet. Dishes that call for the use of excessive amounts of sugar, starches, cream and butter have been omitted. Mothers and nurses who use the book will find it helpful in making meals attractive and aid in combating the problem of poor appetite in a child.

Hearing and Speech in Deaf Children. By Phyllis M. T. Kerridge. Medical Research Council, Special Report Series, No. 221. Reports of the Hearing Committee, V. Paper. Price, 2s. Pp. 137, with 76 illustrations. London: His Majesty's Stationery Office, 1937.

It is estimated that there are about 40,000 persons deaf since infancy in Great Britain. Nearly 4,000 children of school age in England are deaf enough to require education in special schools. Of these, 500 in the schools of London were the object of the study the results of which constitute this report. The report shows that nearly one half of these children were born deaf; others became deaf on account of diseases that might be preventable. The majority of the children investigated were afflicted with a hearing defect before the age of 2 years. All gave evidence of some degree of mutism. Because of the extreme youth of those examined, the author overcame many obstacles in attempting to obtain an accurate estimate of the hearing loss presented by the children. There were experimental studies made with amplified sound which demonstrated not so much an improved faculty for hearing, as it resulted in improvement in speech of these afflicted children. Hence the use of amplified sounds is recommended to improve speech among such patients.

The reports will interest otologists because of the comparisons made of the results of hearing tests, new and old. The data on which determinations are based as to probable benefit of employing hearing aids for severely deafened children are

presented. Those interested in pathology will find interesting clinical histories correlated with physical data. For teachers of the deaf, the detailed reports of progress of a special group of forty-eight children whose education was enhanced through the use of an electrical magnification sound apparatus will be interesting and suggestive. The educational administrator will here find help in making estimates of the number of sound magnification instruments needed by schools for the deafened, if such afflicted children are to have the benefit of modern scientific advances. Finally, even for the designer and manufacturer of hearing aids there are valuable data in the diagrams which indicate the severity and diversity of the physical characteristics of the ear.

Psychiatric Social Service in a Children's Hospital: Two Years of Service in Bobs Roberts Memorial Hospital for Children, University of Chicago Clinics. By Ruth M. Gartland, Assistant Professor, School of Applied Social Sciences, Western Reserve University. Cloth. Price, $1.25. Pp. 105. Chicago: University of Chicago Press, 1937.

This monograph records the experience of the Child Guidance Clinic of the Bobs Roberts Memorial Hospital of the University of Chicago Clinics. The practical experiments described followed the recognition of the necessity for combined psychologic and pediatric knowledge and skill in the furtherance, growth and development of the child. In the beginning an effort was made to have all patients referred to the psychiatric social worker, who could later arrange for the services of a psychologist and psychiatrist. A few patients were referred directly from the outpatient clinic to the psychiatrist by physicians. Service was established primarily to meet the needs of the pediatrician in the children's hospital. Patients referred to it had been admitted either to the hospital or to its outpatient department. The staff comprised a psychiatrist giving half time, a psychologist giving half time and a psychiatric social worker giving half time, assisted by students in psychiatric social work.

The purpose of the study was to determine the value of psychiatric social service in a children's hospital. The children ranged in age up to 14 years. The symptoms noted by the referring physician and thought by him to constitute reason for referring the child to the psychiatric service included habit disturbances, such as feeding, speech, enuresis, masturbation, night terrors, soiling, constipation, thumb sucking, and nail and hand biting; introjective behavior such as restlessness, fears, timidity, seclusiveness, crying, day dreams, depression, apathy and slowness; illnesses unexplained by physical examination, and projective behavior such as school failure, mental retardation and overprotection by the mother. The intelligence quotients by years and by sex indicate that the largest percentage of referred patients were in the range of average to dull. The total number of treatment contacts over a two year period was 1,527, of which 926 were with parents and 601 with patients. As told to pediatricians, parents brought children to the clinic because of physical symptoms only, physical symptoms associated with behavior, behavior only, school difficulties only, or speech defects. Diagnosis consisted of a complete study of the child, physical, intellectual and social-emotional factors being coordinated. Consultation service consisted of one or several interviews with the child, parent or agency social worker with a particular situation that did not seem to need full study. Treatment consisted of continued work in the interest of the patient after physical, social, psychologic and psychiatric understanding revealed a capacity on the part of the patient or parent or both to utilize treatment.

The author holds that a children's hospital seems to be a strategic place in which to render such service. The records of the School of Social Service Administration are now being used for teaching and research. It is implied that a psychiatric social service should be developed in many communities, but nothing is said about the cost of establishing and maintaining such a service. Social service and the social worker are given prominent places throughout the report. It is stated that "social service and cooperation in any community are so dependent on the 'social self consciousness' of that community upon its attitudes, that it is impossible to separate the two in our thinking."

Although this experience records some interesting observations, the results cannot be considered final or conclusive when based on such a small number of cases over a relatively short time.

Ergebnisse und Fortschritte der Antimontherapie. Von Prof. Dr. Phil. Nat. Hans Schmidt und Dr. Med. F. M. Peter. Paper. Price, 15.50 marks. Pp. 218, with 8 illustrations. Leipzig: Georg Thieme, 1937.

This book aims to acquaint the reader with the achievements and the literature of the newer antimony therapy. The main body of the book is taken up with abstracts of the enormously voluminous literature, arranged in as nearly logical clinical form as possible. In this manner the authors "permit the reader to formulate his own conclusions," which it may be difficult for him to do in a number of instances on account of the reporting of directly opposite results. It is obvious that antimony and potassium tartrate and the corresponding sodium salt have been superseded by organic compounds, among which experience has demonstrated a definite divergence of effects. Thus the pentavalent antimony preparations are more effective in the treatment of kala-azar, while the trivalent are superior in the treatment of bilharziasis. In helminthiasis and venereal lymphogranuloma the trivalent antimony is likewise the more efficient. This determination is of great importance because with further development of these two classes of antimony derivatives the therapeutic effect becomes still further specialized. Thus in the pentavalent neostibosan a specific against kala-azar has been developed; but the trypanocidal and spirocheticidal action that stibosan has is lost. Among the trivalent antimonials the authors consider fuadin to have achieved possibly the highest degree of specificity in its field. As with arsenic, one has to distinguish between a "direct action" of the compound, such as is most especially responsible for anthelmintic action, from the "indirect action"; i. e., an effect on the system by which this is rendered capable of destroying the cause of the disease, when neither drug alone or the system alone could effect the cure. Such action occurs in case of antimonial compounds in connection with the virus and bacterial diseases. The newer antimonials must all be given parenterally, although with some of them intramuscular and subcutaneous administration is admissible. The authors consider it remarkable that such a large number of diseases can be influenced by antimony, diseases the causes of which belong to such different groups of organisms as worms and protozoa, bacteria and filtrable viruses. As a summary of what has thus far been done in this field and as an earnest as to what may be further accomplished, this book has an important place.

La thyroidectomie totale dans le traitement de l'insuffisance cardiaque et de l'angine de poitrine. Par le Dr. E. Garcia Carrillo, de la Faculté de médecine de Paris. Paper. Pp. 159. Paris: Maurice Lavergne, Imprimeur, 1937.

This monograph contains a complete summary of the recent work done on total thyroidectomy in heart disease. No new material is presented, but the author has given an excellent presentation of the development of this new surgical procedure of American origin. To the reader in this country the book is superfluous, since the subject has been summarized many times in the various communications of Blumgart, Levine and others. The appearance of the monograph at this time illustrates the lag in enthusiasm for new procedures in different countries. In this country the operation is on the wane, but apparently in France the peak has not yet been reached.

A Textbook of Embryology. By Harvey Ernest Jordan, A.M., Ph.D., Professor of Histology and Embryology, University of Virginia, and James Ernest Kindred, M.A., Ph.D., Associate Professor of Histology and Embryology, University of Virginia. Third edition. Cloth. Price, $6.50. Pp. 613, with 505 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1937.

The original plan of this volume, as stated by its authors, has not been changed since the first edition was published in 1926. In addition to the correction of errors present in the second edition, additions have been made under the topics of hematopoiesis, lymphatics, lung, sex determination, and anomalies. These additions, however, are not at all extensive. Comparison of the third with the first edition reveals the fact that surprisingly little new material has been added in the last eleven years. This is the most serious criticism that can be directed against the latest edition of this book, considering the advances that have been made in this field during the time. Space for important new advances in embryology could perhaps have been made by the elimination of material of ques-

tionable value to the medical student or material more adequately dealt with in textbooks of other fields; for example, the chapter on eugenics. The brief discussions of anomalies appended to many of the chapters are a valuable feature of this work, although occasionally their interpretation might be questioned. For example, the consideration of hypernephroma as accessory suprarenal tissue invading the kidney is disputed by most pathologists and perhaps should not be included as an anomaly at all. The illustrations in the third edition are essentially unchanged since the first edition; they are numerous and generally clear but not otherwise noteworthy. This volume is a useful textbook for medical students and is more complete than most books of its kind in its field, but it falls short of bringing the subject down to the present.

Léčení diabetu. [By] Dr. Otakar Postranecký. [Therapy of Diabetes. With Separate Diet Tables.] Cloth. Pp. 158. Prague: The Author, 1937.

This is a small volume designed primarily as a guide for the treatment of diabetes for the general practitioner. It is a fairly complete summary of the practical treatment of diabetes illustrated by many examples of patients and diets. It is arranged primarily for local use and as such it should serve as a guide for the man in general practice. It is not as critical a study as a similar volume which came from Prague in 1932 from a group of younger men from Professor Pelnář's clinic and it does not conform altogether with the ideas in this country. The chapters on coma and complications are well written. The impression given, however, is one of a somewhat unnecessarily involved management of the patient.

A Handbook on Diseases of Children Including Dietetics, Welfare and the Common Fevers. By Bruce Williamson, M.D., M.R.C.P., Physician to the Royal Northern Hospital, London. Second edition. Fabrikoid. Price, $4. Pp. 329, with 62 illustrations. Baltimore: William Wood & Co., 1936.

This handbook will probably win the favor of the student as well as of the practitioner. In it are condensed the important phases of pediatric practice. It is thoroughly scientific, and accuracy has not been sacrificed in an effort to save space. Each disease is completely discussed, including a short statement concerning the treatment. A chapter on the formulary is included. In this revision certain chapters have been rewritten in accordance with the recent advances in pediatrics.

Handbook of Microscopical Technique for Workers in Animal and Plant Tissues. Edited by C. E. McClung, Ph.D., Professor of Zoology and Director, Zoological Laboratory, University of Pennsylvania. Second edition. Cloth. Price, $8. Pp. 698, with 82 illustrations. New York: Paul B. Hoeber, Inc., 1937.

This book, not being cyclopedic in aim, exhibits the advantages and the faults of a series of essays written by thirty-four authors on a subject that is still more art than science. It begins with an eight-page discussion of methods written for beginners by the editor. The chapter on the study of fresh material (ninety-one pages) includes an admirable account of the aims and procedures of microdissection. Twenty-three pages are devoted to the staining of bacteria; ninety pages to botanic methods, and here is the only discussion of lipoid technics. Cytologic methods cover twenty-four pages, embryologic method thirty-three pages. The chapters on hematology (forty-five pages) include physical, chemical and histologic methods for the study of blood and blood-forming organs. Fifty-eight pages are given to bone and teeth, thirty-five to connective tissue and muscle, 185 to the central nervous system, thirty to the Protozoa. There is a general consideration of the effects of fixatives on living tissue and a chapter on staining which lacks any real understanding of the theory of staining but includes a comprehensive list of stains, their synonymy and some of their uses. A final chapter entitled "miscellaneous" includes methods of illumination for fresh study and microincineration, with an excellent though brief discussion of microchemical theory and one on fluorescent microscopy. Deficiencies in the work are: 1. Lack of an adequate discussion of the microtome knife and the sharpening of it. 2. Absence of an account of the celloidin methods by one of the many who regard these as the only adequate section methods. 3. No mention of any sense organs, although the outmoded "silver in the block" methods are given much space and space has even been taken for pictures showing an author's idea of the correct arrangement of reagent dishes on the table and shelves. 4. The discussion of fixation by perfusion is defective because the author is not aware of the errors involved in washing out the blood with saline solutions and of the danger of using strong fixatives. He does not refer to the fundamental observations of Sauer on the effects of delay in fixing embryos. In the account of the Golgi apparatus, the theoretically important work of Owens and Bensley is omitted.

Evaluation of the Industrial Hygiene Problems of a State. By J. J. Bloomfield and Mary F. Peyton, Junior Chemist, United States Public Health Service. Prepared by direction of the Surgeon General. U. S. Treasury Department, Public Health Service. Public Health Bulletin No. 236. Paper. Price, 15 cents. Pp. 126. Washington, D. C.: Supt. of Doc., Government Printing Office, 1937.

A somewhat detailed study of one fifth of the gainful workers in the state of Maryland shows that nearly all these workers were "exposed" to some sort of harmful material. There is no very clear definition of exposure. "With reference to medical facilities, this survey revealed that 31 per cent of the employees had the services of a full time medical practitioner and 42 per cent a part time physician. A first aid room was available to 56 per cent of the employees, while trained first aid workers were available to 65 per cent of the workers. There was practically no part time nursing service, but, on the other hand, 40 per cent of the workers were provided with full time nurses. The information on disability statistics showed that nearly half of the workers were members of sick benefit associations, while sickness records were kept for approximately 55 per cent of the employees." Perhaps the most valuable section of the report is the appendix on material for a reference library, which constitutes an extensive bibliography to sources of information on industrial hygiene.

Der einfache Schleimhautkatarrh der oberen Luftwege und seine Behandlung. Von Professor Dr. Arthur Thost. Mit einem Anhang: Die Beschwerden der Sänger, Schauspieler und Redner. Paper. Price, 6.60 marks. Pp. 130. Berlin: Julius Springer, 1937.

This is a rather lengthy work featuring in great detail the diseases of the upper respiratory tract with a special portion devoted particularly to singers, actors and public speakers. There is much that is of value in this work, with a considerable amount that in this country at least would not be considered important. The various medicaments, oils, sprays and mineral waters, it is now felt, do not have the importance in therapy they once possessed. Nevetheless, the specialist and even the general practitioner wishing a complete discussion of catarrh of the nose and throat may get it from this monograph.

Feeding Our Children: A Simple and Understandable Exposition of the Principles of Nutrition, Together with Their Practical Application to the Task of Planning Meals for the Various Ages. By Frank Howard Richardson, A.B., M.D., F.A.C.P. Cloth. Price, $1. Pp. 159. New York: Thomas Y. Crowell Company, 1937.

Books on the feeding of children are myriad. Whether they are read by mothers who need the knowledge they contain is questionable. While the present volume contains essential information concerning the principles of nutrition and the practical planning of diets, it is of such length that it possibly may not fill the need for which it is intended. If a child becomes ill, his feeding should be carefully supervised by the physician. A few simple rules should suffice for the planning of the normal daily diet. Those mothers who are interested in the subject of child nutrition often become unnecessarily concerned about the matter of planning the child's diet. The book, however, is well written and simple enough so that it is easily understood. Those mothers who read it probably will find their efforts well expended.

Over zweren in maag en duodenum bij Inheemschen en Chineezen in Nederlandsch-Indië. Door Raden Soeharto. Proefschrift ter verkrijging van den graad van doctor in de geneeskunde aan de geneeskundige hoogeschool te Batavia. [Ulcers of Stomach and Duodenum in Natives and Chinese in Netherland Indies. Thesis for Doctor's Degree at Batavia Medical School.] Paper. Pp. 93. Batavia-C.: Druk G. Kolff & Co., [n. d.].

The author reviews the Dutch Indian literature on gastric and duodenal ulcers and discusses their frequency as demonstrated at necropsy and as diagnosed clinically in the medical

and surgical sections of the hospital at Batavia. He describes the anatomically and presumably etiologically abnormal types of ulcer and the other inflammatory changes of the gastric mucosa. Necropsies and clinical observations show that Chinese males have ten times as many gastric ulcers as the Malays and that gastric ulcer preponderates over duodenal ulcers. The opposite is true for the Malays, in whom the etiology of the ulcers varies greatly and differs from the common type, not infrequently being of tuberculous origin. This thesis is only of local interest.

E. Merck's Jahresbericht: Über Neuerungen auf den Gebieten der Pharmakotherapie und Pharmazie. 50. Jahrgang, 1936. Paper. Pp. 430, with 10 illustrations. Darmstadt: E. Merck, 1937.

The 1936 issue of Merck's Jahresberichte is its fiftieth anniversary. Professor Heubner's short preface portrays with great exactness the spirit of the entire enterprise of Merck as a firm, scientific research institution and literary review exchange of pharmacotherapy and pharmacy. There is one article on modern methods of drug and pharmaceutical analysis which discusses microchemical procedures. That this review appears from the control laboratory of E. Merck, Darmstadt, proves Merck's far-sighted leadership in the pharmaceutical field. The description of a new class of drugs, namely, the derivatives of coumarin-3-carboxylic acid, is especially well done. Also valuable is a pharmacologic investigation of European official and unofficial herbs. The Jahresberichte are most valuable for pharmaceutical control and research institutions and should be in the libraries of all educational centers.

Everyday First Aid. By Walter Frank Cobb, M.D., Medical Examiner, Department of Hygiene, College of the City of New York. Cloth. Price, $1.50. Pp. 269, with 25 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1937.

Too frequently writers of books on first aid have erred in attempting to give too much information. This volume is different. It is unique in its manner of presentation. The reader is given an actual case to "aid," through the news report at the beginning of each chapter. In a way, each chapter is a "practice lesson" on what to do. The simple line drawings are helpful and well chosen to illustrate each lesson. The author does not indulge in moralizing to gain his objective but rather by skilful analysis leads his readers to think along the correct lines of first aid. Using the three letters of the word AID as key letters, the author states that all problems require the same technic. Thus, AID becomes "Ask—Inspect—Do." Emphasis is placed on practice. The physician can conscientiously recommend this book as an excellent addition to family libraries.

Heart Failure. By Arthur M. Fishberg, M.D., Associate in Medicine, Mount Sinai Hospital, New York City. Cloth. Price, $8.50. Pp. 788, with 25 illustrations. Philadelphia: Lea & Febiger, 1937.

This book is intended primarily, the preface states, for the general practitioner. It discusses in considerable detail the newer investigations and theories concerned with adequate and failing circulation. The methods of determining the state of the circulation by clinical and laboratory means are extensively described. Since it is always helpful to understand the physiologic process causing a particular clinical picture, this volume should be of great value to practicing physicians. Because of its length and extensive citations of original authorities, it probably will be found more useful as a reference book than as one that will be read from cover to cover.

Over het elimineeren van darmgassen, storend voor de röntgendiagnostiek. Door Linso Willem van der Burg, officier van gezondheid bij het Koninklijk Nederlandsch-Indisch Leger. Proefschrift ter verkrijging van den graad van doctor in de geneeskunde aan de geneeskundige hoogeschool te Batavia. [Elimination of Intestinal Gases Which Interfere with Roentgen Diagnosis. Thesis for Obtaining Doctor's Degree at Medical School of Batavia.] Paper. Pp. 102, with 12 illustrations. Bandoeng-Java: N. V. Maatschappij Vorkink, 1937.

The author describes the physiology and pathology of the digestive tract in relation to intestinal gases, the general preparation of the patient and the cleaning of the digestive tract, as prescribed in the literature. He discusses critically the current views described and proposes a personal method to eliminate the disturbing gases: it is wrong to let the patient fast on the morning of the roentgen examination or to use charcoal preparations to absorb the gases. Castor oil, he believes, is superior to all other laxatives, the cleansing enema should be given with the patient lying on the right side and the roentgen examination should take place immediately after the enema has acted, the patient remaining on his right side until the moment of examination. Various drawings and copies of roentgenograms illustrate this interesting thesis.

Notes on Clinical Laboratory Methods, Standing Committee on Laboratory Methods, University of Glasgow. Third edition. Cloth. Pp. 86, with 6 illustrations. Glasgow: John Smith & Son, Ltd., 1936.

This book covers only simple laboratory procedures used in "side room testing." It includes routine blood, urine, sputum and feces analyses and a few important special chemical tests. Although all the necessary information concerning these tests is included, it is not always clearly presented. Moreover, American medical students and technicians will find the book of little value, since it is specifically for Glasgow hospitals and many of the methods described are rarely used in this country.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Limitation of Actions; Accrual of Right of Action.—The plaintiff suffered from "malignant destructive myopia," threatening practical blindness in her right eye. The defendant, a physician, performed an operation on that eye, Jan. 9, 1930, consisting, in the words of the defendant, of "what we call needling, breaking the capsule which holds the lens, breaking into the capsule and breaking up the lens to some extent so that the water in the anterior chamber is absorbed into the lens, causes the lens to soften and absorb and disappear." The vision in that eye seemed thereafter to have improved temporarily and a similar operation was performed on the left eye on May 11, 1930. The right eye, however, began to grow worse again; it appearing that after a lens has been removed the posterior capsule frequently becomes opaque, making it necessary to needle it also. Accordingly, the defendant performed a second operation on the right eye on May 9, 1931. Inflammation developed, which made necessary still another operation, May 11, 1931. Finally, in July 1931 the right eye had to be enucleated. The patient, Aug. 8, 1932, brought an action in trespass to recover damages for the injuries to the eye and its ultimate loss. She did not claim that either the original or any subsequent operation was ill advised or was negligently performed. The action was for false and fraudulent representations, based on the allegation that the defendant had assured her that the operation was not a serious one and that it would correct her vision and would enable her to dispense with glasses. The trial court entered judgment for the defendant and the patient appealed to the Supreme Court of Pennsylvania.

The only question presented on appeal was whether or not the action was barred by the statute of limitations which required that it be brought within two years from the time when the "injury was done." The physician contended that the "injury was done" at the time of the first operation, Jan. 9, 1930, and that therefore the two year period had elapsed before the suit was instituted. The plaintiff, on the other hand, contended that the statute began to run when the second operation was performed, May 9, 1931. The statute begins to run, said the Supreme Court, at the time the injury was done even though the damage may not then be known and may not in fact have occurred until afterward. Whatever injury was done to the plaintiff in the present case was occasioned by the first operation, from which her condition on May 9, 1931, was a direct outgrowth. The secondary or capsular cataract removed at that time would not have occurred but for the operation on the lens. The patient contended that she could not know the

original operation was unsuccessful until the later measures proved unavailing and therefore the statute should not be held to run until that time. This argument, answered the Supreme Court, rested on a misapprehension of the nature of the present action. The suit was not based on a promise or guaranty that the plaintiff would be cured; the alleged fraudulent representations were that an operation of the type here involved was not serious and was practically certain to effect a cure. Obviously, the plaintiff was not obliged to wait for the outcome of her own operation in order to discover whether or not the representations were true. Even before the operation was performed at all, she by inquiry from the medical profession could have ascertained whether the operation was of the nature represented by the defendant, whether it was serious or inconsequential, and whether it was speculative or almost certain in its results. While the running of the statute is postponed where by some independent act of fraud or concealment a wrongdoer prevents discovery, there was no evidence of any such independent act on the part of the physician.

The judgment in favor of the physician was accordingly affirmed.—*Bernath v. Le Fever (Pa.), 189 A. 342.*

Health Insurance: Disease Defined.—The defendant insurance company agreed to pay the plaintiff certain benefits if he became "totally and permanently disabled, as a result of bodily injury or disease *occurring and originating after the issuance*" of two policies of insurance, issued in 1927 and 1928, respectively, thereby preventing him from engaging in any occupation and performing any work for compensation or profit. In July 1929 the insured was forced to cease work because of hypertrophic arthritis. For five years the insurance company paid the benefits. It then ceased payments, contending that the plaintiff's disability arose out of a disease originating before the issuance of the policies. The plaintiff brought suit on the policies and obtained a judgment in the trial court. The insurance company brought exceptions to the Supreme Judicial Court of Massachusetts.

There was no expert testimony, said the court, that the disease causing the plaintiff's disability first appeared after the policies were issued. Six physicians were called as witnesses; four testified that the plaintiff must have suffered from the disease before the dates of the policies and the other two expressed no opinion on the question. The testimony of the plaintiff alone, to the effect that he had no trouble until July 1929, tended to show that the hypertrophic arthritis appeared after the year 1928. The trial court ruled that "The word 'disease' means an active or efficient deviation from the healthy or normal condition of any of the functions or tissues of the body; an abnormal alteration of the state of the body or of some of its organs which interrupt or disturb the performance of the vital functions, and result in pain or weakness." This ruling was erroneous, said the Supreme Judicial Court. A disease may exist without pain or weakness. Even if it be assumed that the insured was afflicted by progressive hypertrophic arthritis before 1927, under this ruling the plaintiff could not be found to have had a "disease" before July 1929 if he felt no ill effects until that time. This result is not in accord with the layman's idea of disease, which is satisfied if the abnormal alteration causes or threatens pain or weakness. In *Meyer* v. *Fidelity & Casualty Co. of New York*, 96 Iowa 378, 65 N. W. 328, 59 Am. St. Rep. 374, the court said:

> By the use of the word "disease" we desire to convey the impression of a morbid condition, resulting from some functional disturbance or failure of physical function which tends to undermine the constitution. We do not, as a general rule, apply . . . [the] term to a slight and temporary disorder, or to the imperfect working of some function, which is over in a short period of time, and which, when recovered from, leaves the body in its normal condition. In using [the word], we do not as a rule, refer to a slight and mere temporary disturbance or enfeeblement. If this is true of our ordinary speaking and writing, it is certainly clear that the [word] should be given no broader meaning when we find [it] used by an insurance company in a clause of its policy which it relies upon to defeat a recovery thereon.

The Supreme Judicial Court thought it plain that a man who, although he appears to be in sound health, suffers pain or weakness or who suddenly dies as a direct result of some abnormal condition of his body, without suffering in any way, has, in the common speech of persons, a "disease." The ruling made by the trial court impliedly denies this possibility.

The Supreme Judicial Court accordingly sustained the exceptions brought by the defendant company.—*Palumbo v. Metropolitan Life Ins. Co. (Mass.), 5 N. E. (2d) 836.*

Workmen's Compensation Acts: Strangulation of Preexisting Hernia Compensable.—The worker, while engaged in the course of his employment in lifting railroad ties, sustained a strain which resulted in the strangulation of the contents of an existing hernial sac. A gangrenous condition ensued and an operation performed three days later failed to avert death. An award of compensation in favor of the widow by the workmen's compensation bureau of New Jersey was affirmed by the court of common pleas but was reversed by the supreme court. The widow then appealed to the Court of Errors and Appeals of New Jersey.

The workmen's compensation act specifies, in detail, the circumstances under which a hernia must occur in order to constitute it a compensable injury. The intermediate appellate court, the supreme court, held that the death was not compensable because the hernia did not occur under the circumstances set forth in the act. But, said the Court of Errors and Appeals, the reasoning of the supreme court did not take into consideration the essential difference between the occurrence of a hernia and the traumatic aggravation of that bodily infirmity. Manifestly, the workman in this case could not have met the requirements of the act, for the hernia did not follow but long preceded the accident made the basis of the claim for compensation. His widow did not seek compensation for the hernia but for the death directly traceable to the accidental aggravation of the preexisting disease condition of body. Concededly, the workman's death was caused by the strangulation and the supervening gangrenous condition of the intestinal content of the hernial sac. If extraordinary strain resulting from the lifting of the ties was the causative agent of the strangulation, the fatality was the consequence of an accidental injury within the meaning of the New Jersey workmen's compensation act. The workmen's compensation bureau found there was a definite and direct relation between the accidental strain suffered by the workman and his death three days thereafter. An accident which sets in motion the undeveloped and dangerous physical conditions with mortal consequences, is properly classable as the proximate cause of the fatality. The court, therefore, reversed the judgment of the supreme court and ordered an award for the widow.—*Furferi v. Pennsylvania R. Co. (N. J.), 189 A. 126.*

Society Proceedings

COMING MEETINGS

Academy of Physical Medicine, Philadelphia, Oct. 19-21. Dr. Herman A. Osgood, 144 Commonwealth Ave., Boston, Secretary.

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 10-15. Dr. W. P. Wherry, 107 South Seventeenth St., Omaha, Executive Secretary.

American Clinical and Climatological Association, Baltimore, Oct. 11-13. Dr. Francis M. Rackemann, 263 Beacon St., Boston, Secretary.

American College of Surgeons, Chicago, Oct. 25-29. Dr. George W. Crile, 40 East Erie Street, Chicago, Chairman, Board of Regents.

American Public Health Association, New York, Oct. 5-8. Dr. R. M. Atwater, 50 West 50th St., New York, Executive Secretary.

Association of American Medical Colleges, San Francisco, Oct. 24-26. Dr. Fred C. Zapffe, 5 South Wabash Ave., Chicago, Secretary.

Association of Military Surgeons of the United States, Los Angeles, Oct. 14-16. Dr. H. L. Gilchrist, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Dallas, Texas, Oct. 14-16. Dr. Ralph A. Reis, 104 South Michigan Blvd., Chicago, Secretary.

Clinical Orthopaedic Society, Chicago, Oct. 14-16. Dr. H. Earle Conwell, 215 Medical Arts Bldg., Birmingham, Ala., Secretary.

Delaware, Medical Society of, Wilmington, Oct. 12-13. Dr. W. H. Speer, 917 Washington St., Wilmington, Secretary.

Indiana State Medical Association, French Lick, Oct. 4-6. Mr. T. A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Inter-State Postgraduate Medical Association of North America, St. Louis, Oct. 18-22. Dr. W. B. Peck, 27 E. Stephenson St., Freeport, Ill., Managing Director.

National Society for the Prevention of Blindness, New York, Oct. 6-8. Mr. Lewis H. Carris, 50 West 50th St., New York, Managing Director.

New York State Association of Public Health Laboratories, Albany, Oct. 29. Miss M. B. Kirkbride, New Scotland Avenue, Albany, N. Y. Secretary.

Omaha Mid-West Clinical Society, Omaha, Oct. 17-22. Dr. J. D. McCarthy, 107 South Seventeenth Street, Omaha, Secretary.

Oregon State Medical Society, Salem, Oct. 21-23. Dr. Morris L. Bridgeman, 1020 S. W. Taylor St., Portland, Secretary.
Pennsylvania, Medical Society of the State of, Philadelphia, Oct. 4-7. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.
Society of Surgeons of New Jersey, Trenton, November 20. Dr. Walter B. Mount, 21 Plymouth Street, Montclair, Secretary.
Vermont State Medical Society, St. Johnsbury, Oct. 14-15. Dr. A. B. Soule Jr., Mary Fletcher Hospital, Burlington, Secretary.
Virginia, Medical Society of, Roanoke, Oct. 12-14. Miss A. V. Edwards, 1200 East Clay St., Richmond, Secretary.

THE AMERICAN RHEUMATISM ASSOCIATION

Fourth Annual Meeting and Sixth Conference on Rheumatic Diseases, held in Atlantic City, N. J., June 7, 1937

LORING T. SWAIM, M.D., Boston, Secretary

The Diagnosis and Cure of Rheumatoid Arthritis

DR. RUSSELL L. CECIL, New York: Perhaps the most important problem which confronts a young medical organization such as the American Rheumatism Association is the proper orientation of the society in the field which it proposes to cover. The next task is to attack the problems of nomenclature. This has already been done in England. For example, the British National Committee divides rheumatoid arthritis into two main divisions: (1) rheumatoid arthritis with associated factors; (2) rheumatoid arthritis with no known associated factors. It seems to me that this division of the disease into two groups is hardly justified. The two types present the same pathologic and clinical manifestations, and the immune responses are the same for the two groups.

In discussing the necessary criteria for the diagnosis of rheumatoid arthritis, one may divide them into pathologic, clinical, radiologic and serologic observations. The pathologic observations are quite definite but unfortunately are not obtainable except by means of biopsy. The clinical criteria are the most important of all, and of these the most characteristic are the fusiform finger and the multiplicity of joints involved. Subcutaneous nodules are also a valuable sign when present. The x-ray appearance of the bones and joints in rheumatoid arthritis is highly characteristic, so much so that it is usually possible to make a diagnosis of the disease by this means alone. The most characteristic blood change in the rheumatoid arthritis is the agglutination of Streptococcus haemolyticus by the patient's serum, usually in high dilutions. This test is positive in a large percentage of cases, the actual percentage of the positive reactions depending on the duration of the disease. Another reaction of considerable importance is the sedimentation rate of the red blood cells. A moderate grade of leukocytosis with some increase in the percentage of immature cells is seen in many cases.

What are the criteria for determining the cure of rheumatoid arthritis? Many writers fail to take into account the natural tendency of the disease to remissions and exacerbations. I believe that the first requirement for cure would be freedom from pain and swelling of the joints and a partial or complete return of joint function. The patient should also feel well and should be entirely free from the exhaustion and fatigue that so frequently accompany the disease. In the cured case the sedimentation rate should return to normal and the specific agglutinins with the hemolytic streptococcus should disappear.

It would be worth while for our society to appoint a committee whose duty it would be to set up certain criteria for the diagnosis and cure of rheumatoid arthritis. Copies of these criteria should be in the hands of every member of the society.

DISCUSSION

DR. DOUGLAS TAYLOR, Montreal, Canada: A table published in the June issue of the *Canadian Medical Association Journal* uses x-ray changes for grouping. In stage 1, while a decalcification is present there is no joint change. In stage 2 there is a definite retraction of the joint space with loss of cartilage or bone and further increase of decalcification and osteophytes or spurs. In the third stage there is a definite deformity with subluxation, and in the fourth stage there is destruction of the joint and ankylosis. The clinical features fit in well with these four roentgenologic stages. In the first stage there is slight pain and stiffness; in the second, moderate pain, stiffness and crepitus, with prolonged limitation of motion in the various joints. In the third stage the patient has severe symptoms, with deformities and limitation of motions. These patients may be able to walk but require assistance; they are definitely incapacitated and not able to work. In the fourth stage the patient is usually bedridden and confined to home or institution. We have used this method in our clinic at the Royal Victoria Hospital, Montreal, for the last year and a half. I am submitting it as a means to help group arthritic patients. It is devised for rheumatoid and osteo-arthritis but with slight modification can be used for any type of arthritis. There are certain cases difficult to classify correctly, but in the main I think these divisions should prove useful. The chart is published in the June issue of the *Canadian Medical Association Journal.*

DR. RUSSELL L. CECIL, New York: I think that Dr. Taylor has a fine idea. This is one of the phases of arthritis that the Committee on Nomenclature should take up.

Environmental Factors in Rheumatoid Arthritis

DR. STANLEY COBB, ISABEL WHITING, M.A., M.S., and DR. WALTER BAUER, Boston: Fifty patients with rheumatoid arthritis were interviewed in the arthritic outpatient department clinic or in the wards of the Massachusetts General Hospital. The cases were not selected. The social worker, during about an hour's interview, recorded on a life chart the social data. Later the social worker or one of the physicians filled in the history of the arthritis. Any chronological correlation between attacks of arthritis and environmental stress then became apparent and was indicated in black in the middle column of the life chart. In the ordinary case record the important points are often entirely missed; e. g., that Mary's symptoms began a week after her engagement was broken or that John's began the year he lost his good job and had to begin on new and uncongenial work.

Summarizing the facts in the fifty life charts, in thirty-three cases out of fifty there seemed to be a significant relationship; in seven such relationship was doubtful, and in ten it was entirely lacking. The commonest environmental burden chronologically associated with arthritic attacks was unhappiness within the family (eleven cases); three of these situations led to separation of husband and wife. Severe financial worry coincided with attacks in ten cases. The loss of a parent or spouse preceded the attack in seven cases. Other forms of stress or combination of these were associated with onset of symptoms in the other five cases. The situations were usually complex and therefore simple classifications are unsatisfactory; but the main facts seem to be significant, although the interviews were too short to obtain reliable psychologic data. Nevertheless this survey indicates a relationship between emotional stress and the attacks of rheumatoid arthritis in 66 per cent of fifty cases.

Ten of the fifty cases showed no relationship. In seven the data were equivocal; no definite coincidence in time between the appearance of symptoms and the history of environmental stress could be made out, although the same factors of worry, uncertainty and unhappiness appeared in the life histories of these questionable cases as in the thirty-three in which the relation was obviously significant.

In this limited survey a relationship between environmental stress and onset (or exacerbation) of arthritis is brought out by the life chart in two thirds (66 per cent) of the fifty cases. For a further demonstration of this relationship an intensive study of a few patients is needed. This is being done by Dr. Giles Thomas in New York. It is also important to have more control material. So far, we have examined twenty-five cases of varicose ulcer in exactly the same way as with rheumatoid arthritis. Varicose ulcer was chosen because it is a disease with rather obvious etiology and attacks people in about the same age and sex group as the arthritis. In twenty-five cases examined in this way there were only two in which there appeared to be a coincidence in time relation between the onset of the ulcer and social stress in the environment. There were no cases that seemed of doubtful significance and twenty-three showed no significant relationship.

DISCUSSION

DR. GILES THOMAS, New York. A year ago I reported a series of thirty-one cases and the observations were in general agreement with those of Dr. Cobb and his co-workers. I found what I thought was a significant emotional factor in all cases. I think I went into somewhat more detail in the psychiatric examination, and also my series was smaller than theirs. This may account for the discrepancy, but perhaps it is not important. If one can find an important emotional disturbance in every case of rheumatoid arthritis, what significance has the observation? As soon as one begins to discuss this problem, one is told that significant emotional disturbances can be found in any one, and, the informant adds, "if you examine the department of medicine you will find just as much, and if you examine the department of psychiatry, twice as much." In spite of these difficulties, I think it is possible to come to some conclusions. The authors' series of controls of patients with varicose ulcer indicates this. There is another controlled series now being studied by Dr. Ludwig in Dr. Bauer's clinic. Gonorrheal arthritis often resembles rheumatoid arthritis, but uncomplicated gonorrhea occurs also. It occurred to Dr. Ludwig that if uncomplicated cases of gonorrhea and cases of gonorrheal arthritis were both examined psychiatrically, the cases of uncomplicated gonorrhea might serve as controls. The infection would be the same in the two series, and if the incidence of emotional disturbance differed greatly in the two series it might be possible to draw some conclusions about the rôle of emotional factors in gonorrheal arthritis, and perhaps by analogy in rheumatoid arthritis. I have not examined any cases of uncomplicated gonorrhea psychiatrically, but I have seen a few cases of gonorrheal arthritis and have found that the same psychic disturbances are present as in rheumatoid arthritis. If it is assumed that emotional disturbances play a part in the genesis of rheumatoid arthritis, through what mechanism could this influence act? Emotional disturbances have a definite and pronounced effect on physiologic function, and it seems reasonable that a prolonged disturbance of physiologic function could give rise to structural changes, with or without the presence of infectious or traumatic agents. I find no difficulty in demonstrating emotional disturbances in patients with rheumatoid arthritis, but if this is a factor why should the patient get rheumatism rather than gastric ulcer, hyperthyroidism or some other disorder? This is a problem for which no answer is available. Perhaps there is a constitutional factor. An attempt to answer this question has been made by Dr. G. C. Booth of New York. He compared patients with arthritis and paralysis agitans, and found significant differences in their modes of reaction which he believed were important in determining which diseases appeared. I feel that as yet there has not been enough work done to form a basis for drawing any conclusions. I think that the localization of the disease, that is, the joints involved, may often be influenced by psychologic factors in the same way that the localization of symptoms is determined in conversion hysteria. If the neurotic factor is as important in rheumatoid arthritis as I think it is, treatment of the neurosis should improve the arthritis. I have noticed that some patients I examined and talked with a few times seemed relieved after a discussion of their problems, and the arthritis was symptomatically better. A few were definitely upset and the arthritis worse. At the present I am psychoanalyzing two patients, but it will be some time before I shall be ready to make a report.

DR. H. ARCHIBALD NISSEN, Boston: The work that Dr. Cobb and his co-workers have presented is enlightening. If they can follow up each patient along the same lines, it will be interesting to hear their observations at the end of a five year period. I find that the patient's adjustment to his emotional problems, rather than the emotional problems per se, is the point of greatest importance. Such a study does not mean just one visit; it means repeated visits at the hospital, home or office. In time the patient usually volunteers information on changes in muscles and joints which his own observations have told him resulted from various emotional upsets. Thirty per cent of the group in which I have been particularly interested have become bedridden or wheel chair patients. Watching this group year by year, one finds as a characteristic a contented emotionalism, so to speak—a rather smug self complacency. No matter what is done for that individual, something else is always needed. For instance, one man started in with nothing more than a bruise on one knee, received when he slipped from the second step of a stepladder. It was a year and a half before he had hospital care. Had he been seen at this time and studied from a psychogenic point of view, the personality abnormalities might have been recognized before actual joint damage had occurred. They might have been corrected, or at least brought into the man's conscious thinking. Of course, they may have been to deep seated even at this time to be susceptible to change by recognition, but I believe that this type of joint reaction is evidence of severe psychosis. As it was, he had several operations: tonsillectomy, transfusions, teeth extractions, manipulations. At the end of a year he left the hospital worse than when he was admitted. Under new therapy he appeared to improve for a year; then the downhill course was resumed, as if the "will to be ill" had conquered the "will to be well." What can we do from a therapeutic point of view? First, by studying each patient's manner of adjustment we can estimate partially the degree of psychogenic maladjustment and the possible type of organic reaction (always bearing in mind Jelliffe's question "What price healing?" Sometimes the somatic manifestations are less deadly than the psychic). Second, we can assist the individual to recognize such conditions and help himself; third, we may reach a correct prognosis more rapidly than when the body alone is studied and the patient's psychology is ignored. Coincidentally, the body and its physiology must be treated symptomatically and specifically. Dr. Cobb has opened the way. If each year he will give the results of follow-up studies I know we shall learn a great deal more about the real importance of psychogenic factors as related to the origin, remission and relapse of rheumatic diseases.

DR. ROBERT B. OSGOOD, Boston: An active medical man, about twelve years ago, with some worries began to have a typical rheumatoid arthritis, with some erosion of the bones. Rest and freedom from worry led to recovery except for one wrist by the very criteria Dr. Cecil has mentioned. He carried on a heavy hospital service for eleven years without any return of his arthritis, but then a combination of worries that would have floored almost any man led to an exacerbation of his arthritic condition. The only thing that anybody has been able to find in his case is this accumulation of worry to account for the recurrence of his syndrome of rheumatoid arthritis. The worries were overcome, rest and therapeutic measures were instituted, and the patient is now prepared to go back to work. This a a striking case, helping to emphasize the point to which the authors have called our attention so well.

DR. ABRAHAM S. GORDON, Brooklyn: I wonder whether the authors know of any one who has made a comparative study of a subject such as asthma. I mention this in particular because I believe that if such a study were made it would show as high a percentage as the one shown here in arthritis. Therefore, it brings us back to the original question of predisposition of the patient with the clinical syndrome of arthritis rather than merely the manifestations of arthritic symptoms.

DR. WALTER BAUER, Boston: Rheumatoid arthritis is a disease of unknown etiology characterized by remissions and relapses. All are interested in knowing not only the cause of this disease but also the various factors responsible for the many unexplained remissions and relapses. In following a group of these patients from month to month, one sees many unexplained relapses. A careful history fails to elicit any one of the frequently mentioned precipitating factors, such as upper respiratory infections, constipation or physical trauma. In the same group, however, one can frequently elicit a history of the existence of disturbing environmental factors. Such disturbing factors in certain instances were present preceding the onset of the disease. I might briefly mention the history of a young woman whose marriage was postponed because her father fell ill with a severe arthritis. On the day planned for her marriage she noted for the first time swelling, redness and pain of the midphalangeal joint of the ring finger. Her arthritis gradually progressed so that now she is suffering from a fairly extensive rheumatoid arthritis. It is interesting

that the first joint involved was the midphalangeal joint of the ring finger of the left hand. How do these emotional factors affect the individual? Undoubtedly some of the vasomotor and neurologic symptoms these patients complain of are a direct result of such environmental factors. However, one would like to know what other physiologic processes are affected. Do they result in actual disturbances of the physiologic function of the normal joint and thus play a major etiologic rôle? A better understanding of the anatomy and physiology of the normal joints is essential to a knowledge of how these factors operate. The answer to these and many other questions must be found before the rôle can be fully evaluated of such factors in the production of rheumatoid arthritis and the many unexplained remissions and relapses encountered. I doubt whether the emotional disturbances alone are ever the sole cause of the disease. I believe an infectious agent is necessary for the production of this disease state. Is it possible that either factor alone is incapable of producing the disease but the combination of the two results in rheumatoid arthritis? We do not know. Similar control studies will be carried out on a series of patients with gonorrheal arthritis. Dr. Cobb is also making such a study in a group of asthmatic patients.

(To be continued)

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers in continental United States and Canada for a period of three days. Periodicals are available from 1927 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them. Titles marked with an asterisk (*) are abstracted below.

American Journal of Hygiene, Baltimore

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Reticulocyte Response in Acute, Fatal Hookworm Anemia. J. W. Landsberg, Baltimore.—p. 60.
Observations on Mode of Action of Several Anthelmintics on Ascaris Lumbricoides (Pig Strain). H. W. Brown, Savannah, Ga.—p. 72.
Thermal Interchanges Between Human Body and Its Atmospheric Environment. A. P. Gagge, L. P. Herrington and C.-E. A. Winslow, New Haven, Conn.—p. 84.
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Behavior of Certain Filtrable Agents from Cases of Colds and Influenza Isolated Directly from Man to Chick Membranes. R. R. Hyde and Jeannette Chapman, Baltimore.—p. 116.
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Survey (1936) of Malaria Among Infants in Greek Macedonia. M. A. Barber, A. Mandekos and J. B. Rice, New York.—p. 175.
Influence of Bile Salts on Giardia Infections in Rats. R. Hegner and Lydia Eskridge, Baltimore.—p. 186.

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Surgical Treatment of Complete Perineal Tears in the Female. N. F. Miller and W. Brown, Ann Arbor, Mich.—p. 196.
Six Normal and Complete Presomite Human Ova. J. I. Brewer and J. E. Fitzgerald, Chicago.—p. 210.
Retrograde Cystocele Operation: Preliminary Report. J. L. Bubis, Cleveland.—p. 225.
Some Less Generally Recognized Aspects of Gynecologic Endocrinology. E. Novak, Baltimore.—p. 237.
Etiology and Treatment of Primary Dysmenorrhea: Physiologic and Clinical Study. J. E. Lackner, L. Krohn and S. Soskin, Chicago.—p. 248.
Study of Five Patients with Chorionepithelioma. J. A. Gough, Chicago.—p. 267.
Tuberculosis and Pregnancy. G. D. Royston, J. Jensen and H. Hauptman, St. Louis.—p. 284.
*Treatment of Cervicovaginitis in Children with Silver Picrate Suppositories: Preliminary Report. A. J. Kobak and L. E. Frankenthal Jr., Chicago.—p. 292.
Maternal Morbidity: Six Years Study of 4,837 Cases at the Evanston Hospital. R. M. Grier, Evanston, Ill.—p. 298.
Lymphangioma of the Ovary. R. S. Siddall and W. R. Clinton, Detroit.—p. 306.
Delivery Following Stillbirth from Dystocia in Previous Pregnancies. A. B. Hunt and R. D. Mussey, Rochester, Minn.—p. 310.
Ten Year Statistical Report of Carcinomas of the Cervix. F. W. Smythe, Memphis, Tenn.—p. 317.

Treatment of Cervicovaginitis with Silver Picrate Suppositories.—Kobak and Frankenthal find that silver picrate suppositories are easily used and find their way into all the crypts of the vaginal canal and still are not expelled prematurely with subsequent loss in efficiency. They have been used in the treatment of twenty-two cases of cervicovaginitis in children. The cooperation of the class of mothers that the authors were dealing with could be assured only when their duties were easy to comprehend and did not entail much effort. The suppositories were inserted nightly after the vulva between the labial folds was cleansed with bland soap. The suppository used was of such size that it should readily pass the hymen and of such length that it occupied the entire length of the vagina. It has a boroglycerin gelatin base. The dosage of silver picrate was 0.065 Gm. to each suppository. It melted readily at body temperature and appeared to diffuse easily throughout the surface of the vagina into its crypts. The material was observed to adhere well to the vaginal surface with which it came in contact. The patients showed rapid and definite improvement, as evidenced by the quick disappearance of the discharge. The recorded observations of the mothers also confirmed this improvement. Five of the patients had a permanent negative smear after one week of treatment, and three became negative in three weeks. Four patients became permanently negative after six to nine visits to the clinic. Only one patient remained resistant to treatment and did not become permanently negative until fifteen visits had been made. The nonspecific group likewise showed a rapid response to this therapy.

American Journal of Ophthalmology, St. Louis

20: 777-880 (Aug.) 1937

Bilateral Partial Colobomas of Optic Nerve. F. H. Adler, Philadelphia.—p. 777.
Studies on Oxygen Consumption of Rabbit Lens and Effect of 2-4 Dinitrophenol Thereon. J. Field 2d, E. G. Tainter, A. W. Martin and H. S. Belding, San Francisco.—p. 779.
Luxation of Lens Through a Retinal Tear into the Subretinal Space. F. B. Fralick, Ann Arbor, Mich.—p. 795.
Testing of Fitness for Night Flying: The Light Sense. C. E. Ferree and G. Rand, Baltimore.—p. 797.
Treatment of Seborrheic Blepharoconjunctivitis. W. B. Clark, New Orleans.—p. 808.
Concerning Conditions Simulating an Intra-Ocular Tumor: Correlation of Clinical and Histologic Findings. Bertha A. Klein, Chicago.—p. 812.
Spontaneous Rupture of Lens Capsule in Hypermature Cataract Causing Secondary Glaucoma. H. C. Knapp, East St. Louis, Ill.—p. 820.
Refractive Errors in Same Eyes Under Scopolamine and Under Atropine Cycloplegia. L. Bothman, Chicago.—p. 822.

Am. J. Roentgenol & Rad. Therapy, Springfield, Ill.

38: 245-388 (Aug.) 1937

Oblique Projection of Thorax: Anatomic and Roentgenologic Study. C. B. Peirce and B. W. Stocking, Ann Arbor, Mich.—p. 245.
Roentgenologic Observations on Resected Stomach Following Surgical Intervention. Evelina Liberatori, Arezzo, Italy.—p. 268.
Diverticula of Stomach. E. L. Shiflett, Louisville, Ky.—p. 280.
*Roentgen Diagnosis of Pathologic Processes of Small Bowel. J. F. Elward, Washington, D. C.—p. 289.
Hernia of Mediastinum. H. P. Doub and H. C. Jones, Detroit.—p. 297.
Pilonidal Sinus. A. M. Sharpe, Chester, Pa.—p. 303.
Roentgen Irradiation as Adjunct to Surgical Treatment of Pilonidal Cyst. R. M. Smith, Philadelphia.—p. 308.
Measurement of Ionization Produced in Air by Gamma Rays. G. Failla and L. D. Marinelli, New York.—p. 312.
Radiotherapy for Endothelioma of Bone. A. U. Desjardins, H. W. Meyerding and E. T. Leddy, Rochester, Minn.—p. 344.
Specification of Roentgenographic Technic. C. J. Zintheo Jr., Richmond Highlands, Wash.—p. 352.

Pathologic Processes of Small Intestine.—Elward believes that the x-rays play a most important part in the early and accurate diagnosis of gastro-intestinal pathology. This is particularly true in the diagnoses of lesions of the duodenum, jejunum and ileum. The roentgen examination of the small intestine is a combined use of roentgenoscopy and roentgenography, a contrast medium, usually purified barium sulfate,

being used. If sufficient information is obtained to warrant a diagnosis of obstruction by roentgenoscopic and flat-film studies, a contrast medium should not be used, because the hard, inspissated masses of barium sulfate may interfere greatly with the surgical procedure necessary to afford relief. The roentgenoscopic method depends on the fact that the small intestine normally does not contain gas or fluid in sufficient quantities to form a level of fluid visible when the patient is examined in the upright position. It also gives some idea of the size of the small intestine and the location and duration of the obstruction. The method of using a contrast medium is particularly applicable to cases of partial obstruction in which the time element is not paramount. The method is of value in tuberculosis, hernias, anomalies, partially obstructive new growths, diverticula, displacements, ulcers and adhesions. Retention of twenty-four hours in the ileum may be considered pathologic if there are no factors, such as higher obstructive lesions, pyloric stenosis, gastric ulcer or duodenal ulcer, to interfere, or lower obstructive lesions, such as cancer of the cecum. An incompetent ileocecal valve may also account for the twenty-four hour ileac retention; this, however, is a regurgitation rather than a retention. The opposite condition is seen when the entire barium sulfate meal has passed into the colon in six hours, when hypermotility is said to exist. Repeated and detailed examinations should be made to determine the cause or causes, some of which are tuberculosis, simple ulcer, achylia gastrica and scirrhous carcinoma. A too large gastro-enterostomy stoma or purgative drugs may cause a pseudohypermotility.

Georgia Medical Association Journal, Atlanta

26: 399-422 (Aug.) 1937

Committee Report: Study of Maternal Mortality and Infant Deaths—1936. H. F. Sharpley Jr., Savannah.—p. 399.
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Clinical Consideration of Paranasal Sinus Disease. T. Burgess, Atlanta.—p. 411.
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The Necessity for Developing Better Home Care for Tuberculosis Patients. H. C. Schenck, Atlanta.—p. 425.
Unfavorable Reaction from Sodium Morrhuate. M. B. Hatcher and H. W. Long, Augusta.—p. 427.
Vascular Syphilis. S. P. Sanford, Savannah.—p. 428.
Crawford W. Long Memorial. W. D. Gholston, Danielsville.—p. 429.
Trigeminal Neuralgia. F. C. Lee, Riderwood, Md.—p. 431.

Illinois Medical Journal, Chicago

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Sleep Induced by Sodium Amytal: Modified Treatment for Use in Psychoses. F. S. Rankin, Chicago.—p. 167.
Rabies in Illinois—1936. G. H. Gowen, Springfield.—p. 174.
Present Status of Plastic Surgery. J. F. Pick, Chicago.—p. 177.
Duration of Anesthesia with an Oil Soluble Anesthetic Solution. T. F. Reuther, Effingham.—p. 182.
Diagnosis and Treatment of Occiput Posterior Position. W. Cooley, Peoria.—p. 183.

Journal of Bacteriology, Baltimore

34: 139-242 (Aug.) 1937

Purification and Concentration of Diphtheria Toxin: III. Separation of Toxin from Bacterial Protein. M. D. Eaton, St. Louis.—p. 139.
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Studies on Cultural Requirements of Bacteria: X. Pimelic Acid as Growth Stimulant for Corynebacterium Diphtheriae. J. H. Mueller, Boston.—p. 163.
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Cell Inclusions and Life Cycle of Azotobacter. I. M. Lewis, Galveston, Texas.—p. 191.
Oxidation of Sewage by Bacteria in Pure Culture. C. T. Butterfield, Cincinnati.—p. 207.
Carbon Metabolism of Crown-Gall and Hairy-Root Organisms. H. A. Conner, A. J. Riker and W. H. Peterson, Madison, Wis.—p. 221.

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61: 1-128 (July-Aug.) 1937

Fowl Leukosis. C. D. Lee, H. L. Wilcke, C. Murray and E. W. Henderson, Ames, Iowa.—p. 1.
Brucella Abortus in Horses. A. W. Deem, Columbus, Ohio.—p. 21.
Further Observations on Rough Cultures of Fusiform Bacilli. Ruth Tunnicliff and Carolyn Hammond, Chicago.—p. 26.
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Unsuccessful Attempts to Cultivate the Virus of Epidemic Poliomyelitis in Various Living Tissue Mediums. Clara Kast and J. A. Kolmer, Philadelphia.—p. 60.
*Attempts to Transmit Epidemic Poliomyelitis to Rabbits, Guinea-Pigs, Rats, Mice, Chickens and Ferrets With and Without Depression by X-Rays. J. A. Kolmer, Anna M. Rule and Mary Werner, Philadelphia.—p. 63.
Studies on Influence of Sulfur and Certain of Its Compounds on Growth of Tubercle Bacillus. R. C. Rosenberger and L. Merves, Philadelphia.—p. 69.
Passage of Diphtheria Antitoxin into the Brain. M. Weichsel and H. Salfeld, New York.—p. 73.
Normal Bacterial Agglutinins and Their Significance. E. O. Jordan, Chicago.—p. 79.
Method of Transmission of Immunity to Equine Encephalomyelitic Virus in the Guinea-Pig. Beatrice F. Howitt, San Francisco.—p. 88.
Simple and Rapid Method of Preparing Antigenic Streptolysin. P. H. Long and Eleanor A. Bliss, Baltimore.—p. 96.
Studies on Pertussis Bacillus: Effects of Introduction of Pertussis Antigen into Nasal Passages. P. H. Long and Eleanor A. Bliss, Baltimore.—p. 100.
Action of Preservatives and Salts on Blackleg Cultures. J. P. Scott, Manhattan, Kan.—p. 103.
Biochemical and Serologic Characteristics of Streptococci of Bovine Origin. W. N. Plastridge and S. E. Hartsell, Storrs, Conn.—p. 110.
*Typhoid Carriers: Study of Environmental and Other Factors Bearing on Periodicity. R. McBurney, University, Ala.—p. 122.

Transmission of Poliomyelitis to Animals.—Kolmer and his co-workers attempted to transmit the virus of poliomyelitis of a single monkey passage strain to young rabbits, mice, guinea-pigs, chickens and ferrets with and without depression of the marrow and lymphoid tissues by x-rays. The inoculations were intracerebral, intravenous, intranasal, intraperitoneal and intracisternal. All animals were kept under daily observation for at least two months for any recognizable clinical evidences of infection, and the spinal cords of all those dying were examined microscopically for any histologic evidences of poliomyelitis. Of twenty young rabbits varying in age from 4 to 6 weeks variously inoculated, only one succumbed in twenty-four hours after intracerebral inoculation and all four after intravenous injection. None showed any recognizable clinical evidences of infection, and no lesions suggestive of infection of the spinal cord were found on microscopic examination. It may be, however, that infection occurred after intravenous inoculation, since all inoculated by this route died. In six ferrets inoculated intracerebrally and intraperitoneally, no clinical evidences of infection developed and none died. Twelve young guinea-pigs were inoculated intracerebrally, intravenously and intraperitoneally. Three died with no recognizable lesions in the spinal cords and the surviving nine animals showed no demonstrable clinical evidences of infection. Sixteen white mice were inoculated intracerebrally or intraperitoneally; two of the ten inoculated intracerebrally died one and twelve days later but showed no lesions in the spinal cord. Three of the six inoculated repeatedly intraperitoneally also died with no demonstrable lesions of the spinal cord. Sixteen chickens of mixed breeds and both sexes were inoculated intracerebrally; paresis of one or both wings with emaciation and general muscular weakness developed in four and death ensued in from seven to fourteen days later. Four animals inoculated intracerebrally with virus after mixture with convalescent immune serum containing antiviral antibody remained perfectly well. Under the circumstances and in view of the symptoms presented by four chickens that died, the authors were hopeful of the successful transmission of the virus, but in consultation with Dr. Stubbs it was suggested that the illness of these chickens was due to avitaminoses. A repetition of the experiment during which the chickens were kept on a better diet gave completely negative results and in the meantime a careful microscopic examination of the spinal cords of the four chickens revealed no histologic evidences of poliomyelitis. Certain of the studies

in mice are being continued to determine the possibility of infection of other tissues and especially of the organs of the reticulo-endothelial system.

Typhoid Carriers.—McBurney states that weekly examinations of the stools of seven typhoid carriers covering fifty-two weeks showed that the number of positive stools among women was 15 per cent higher than among men. There was no correlation among adults referable to age, duration of the carrier state and the percentage of positive stools. The well established positive group was positive 87 per cent of the time. There was practically no negative phase among them. Temperature, humidity, diet, mode of living, minor illness and other factors studied did not alter the carrier state. Increasing temperatures and humidity during the warmer months did not produce a positive phase among the four carriers who had consistently negative stools. For the seven positive carriers there were never more than two negative stools in any one week and not one positive carrier had a negative stool more than two successive times. Of twenty-four weekly fecal specimens from seven well established typhoid carriers, typhoid bacilli averaged 49.45 per cent of the bacterial flora. Considering the results obtained from the whole group studied throughout the year, coupled with the hot room experiments, it seems justifiable to conclude that changes in temperature, humidity, environmental and other factors studied had no effect on periodicity.

Journal of Lab. and Clinical Medicine, St. Louis

22: 1097-1208 (Aug.) 1937. Partial Index

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Toxicity of Morphine Sulfate and Pressor Episodes. A. J. Nedzel, Chicago.—p. 1125.
Influence of Diet on Action of Phenobarbital Sodium. A. J. Nedzel, Chicago.—p. 1130.
*Studies Relating to Toxicity of Fluorine Compounds. C. A. Kempf, D. A. Greenwood and V. E. Nelson, Ames, Iowa.—p. 1133.
*Dextrose Tolerance in the Aged. M. D. Deren, New York.—p. 1138.
Study of Immunity to Staphylococcus Toxin in Albino Rat. R. H. Rigdon, Nashville, Tenn.—p. 1141.
Guanidine-like Substances in Blood: 1. Colorimetric Estimation and Normal Values. J. E. Andes, Morgantown, W. Va., and V. C. Myers, Cleveland.—p. 1147.
Silver Picrate Treatment of Vaginal Trichomoniasis. L. J. Golub and H. A. Shelanski, Philadelphia.—p. 1155.
Effect on Heart of Experimental Pleural Conglutination. H. M. Korns, H. Landt, O. R. Hyndman, R. Gregory and C. N. Cooper, Iowa City. —p. 1161.
Examination of Suspected Semen Stains for Spermatozoa. W. W. Williams, Springfield, Mass.—p. 1173.
An Improved Stain for Use in Rapid Biopsy Diagnosis. A. L. Barbrow, Pittsburgh.—p. 1175.
Lipolytic Activity of Lactobacillus Acidophilus. D. B. Sabine, Yonkers, N. Y.—p. 1183.
Simple Centrifugation Method for Diagnosis of Syphilis. F. Rytz, Minneapolis.—p. 1186.
Determination of Icteric Index by Acetone Method. R. A. Newburger, New York.—p. 1192.
Criticism on Sumner Method for Urine Sugar. S. Malkiel, Boston. —p. 1195.
Chemical Tests for Diagnosis of Pregnancy. I. Gersh and J. Lewin, Denver.—p. 1197.

Toxicity of Fluorine Compounds.—Kempf and his associates found that the oral administration of from 0.45 to 4.52 mg. of fluorine as sodium fluoride per kilogram of body weight caused no effect on total calcium, acid-soluble inorganic phosphorus, hemoglobin or coagulation time of the blood of the dog. Roentgenograms indicate that there are no changes in the bones of dogs which received 4.52 mg. of fluorine as sodium fluoride orally per kilogram of body weight. Alpha fluoronaphthalene produced mottled enamel, whereas the ingestion of p, p^1-difluorodiphenyl, p-fluorobenzoic acid and fluorobenzene had no effect on the teeth. Fluorine in water has been lowered by treatment to from 1.5 to 2 parts per million from an original concentration of 8 parts per million. Acidity of the water is a factor in the removal of the fluorine by aluminum sulfate. This is in part due to the nature of the flock produced under different hydrogen ion concentrations. Calcium silicofluoride and cupric fluoride caused mottled enamel, whereas ingestion of aluminum fluoride did not produce this effect. The ingestion of aluminum sulfate, simultaneously with fluorides, prevents, or at least markedly reduces, the effect of fluorine on the teeth.

Dextrose Tolerance in the Aged.—Deren studied the dextrose tolerance of fifty subjects more than 55 years of age (free from acute infections, diabetes mellitus and glomerular [hemorrhagic] nephritis) admitted to the hospital for a variety of conditions, particularly, heart disease, osteo-arthritis, hypertension and arteriosclerosis. The fifty subjects were divided into equal groups. One group was investigated by the standard method (100 Gm. of dextrose after an overnight fast) and the other group by the Exton-Rose procedure (two 50 Gm. doses of dextrose given at an interval of thirty minutes after an overnight fast; abstracted in THE JOURNAL Nov. 3, 1934, p. 1405). The blood sugar was determined by the method of Folin and Wu and the urine sugar by Benedict's method. The results with the standard test indicate that in the aged the fasting blood sugar is normal, the highest being 113.4 mg. per hundred cubic centimeters. The peak of the curve is generally delayed, varying from one to two hours. The duration of the curve is prolonged, in most instances exceeding two hours. Sixteen cases with high prolonged, five with prolonged and four with normal blood sugar curves were observed. Urine volumes were small, and in many instances none could be voided throughout the length of the test. In the one hour two-dose dextrose tolerance test the fasting blood sugar levels are comparable to those of the first group. An analysis of these data according to the criteria postulated by Exton and Rose revealed twenty-one diabetic and four normal types of sugar curves.

Medical Annals of District of Columbia, Washington

6: 195-238 (July) 1937

Chemicobiologic and Clinical Behavior of Arsenoxide (Mapharsen). G. B. Roth and G. W. Creswell, Washington.—p. 195.
Present Status of Mapharsen in Treatment of Syphilis. R. L. Wells, Washington.—p. 205.
Ideal versus Practical Treatment of Early Neurosyphilis. R. A. Vonderlehr and Lida J. Usilton, Washington.—p. 209.
Syphilis in Medical Clinic. G. W. Creswell, Washington.—p. 216.
What the Health Department Is Doing in Prevention and Treatment of Venereal Diseases. T. C. Thompson, Washington.—p. 220.
William Alanson White, M.D., M.A., D.Sc., LL.D.: His Influence on the Medical Profession. W. J. Mallory, Washington.—p. 223.

Nebraska State Medical Journal, Lincoln

22: 245-284 (July) 1937

Spirit of Organized Medicine. C. G. Heyd, New York.—p. 245.
Social and Medical Aspects of Venereal Disease Problem in Nebraska. P. H. Bartholomew, Lida J. Usilton and R. A. Vonderlehr, Washington, D. C.—p. 251.
Injection Treatment of Hernia. R. H. Whitham, Lincoln.—p. 257.
Peripheral Vascular Disease: VI. Raynaud's Disease. C. W. McLaughlin Jr., Omaha.—p. 261.

New England Journal of Medicine, Boston

217: 161-198 (July 29) 1937

Differential Diagnosis of Jaundice. C. G. Heyd, New York.—p. 161.
Postoperative Parathyroid Tetany. N. W. Swinton, Boston.—p. 165.
A Dietary Study in Rheumatic Fever. Sue E. Sadow, J. P. Hubbard and T. D. Jones, Boston.—p. 170.

217: 199-240 (Aug. 5) 1937

The Medical Profession. C. G. Heyd, New York.—p. 199.
Studies on Local and Systematic Effects of Acetyl Beta-Methylcholine Administered by Iontophoresis. L. Martin, with assistance of H. Ruland and L. Ruland, Baltimore.—p. 202.
George Washington Gay Lecture: Medical Ethics and the Art and Practice of Medicine. L. Davis, Boston.—p. 206.
The Management of Gonorrhea: V. Treatment of Gonorrhea in the Male: Details of Procedure. Neisserian Medical Society of Massachusetts.—p. 213.
*Treatment of Menopause Syndrome by Irradiation of Pituitary Gland. R. Zollinger and W. W. Vaughan, Boston.—p. 219.

Treatment of Menopause by Irradiation of Pituitary.—Zollinger and Vaughan employed irradiation of the pituitary body in the treatment of fourteen women who complained of varying degrees of discomfort during the menopause. The majority were having severe symptoms. At least one half of these patients had taken various kinds of ovarian preparations and sedatives with little or no benefit. Most of the patients selected for treatment complained of insomnia because of the hot flashes, accompanied by marked perspiration. The menopause followed surgical castration in seven patients, roentgen therapy in four and application of radium in one, and was of natural occurrence in the remaining two cases. The duration of symptoms, before radiation therapy was instituted, varied from two months to eight and one-half years. Of the fourteen

patients treated at least nine months to one year ago, five had a definite and sustained decrease in the number of hot flashes and marked symptomatic improvement; three other patients stated that they were definitely improved, although by tabulation there was little if any change in the number of hot flashes. The remaining patients were not improved subjectively, and the number of hot flashes remained at a preirradiation level. The patients showing definite improvement recorded a fall in the number of hot flashes about the third day of therapy. Although a standard of from 1,400 to 1,600 roentgens was given over a period of four days, this quick response may be taken as an indication that benefit could be expected from smaller doses, such as 800 roentgens. To rule out the psychic effect of x-ray treatment three patients were given sham therapy; two reported a decrease in the intensity of the flashes. Three of the five patients who were definitely improved had had castration by surgery within a year of the onset of treatment. The average age of the improved patients was 36, which is six years below the average for the entire group. Basal metabolic and sugar tolerance determinations were made before and at intervals after the irradiation in order to check any possible damage to the diabetogenic and thyrotropic hormones, but there was no remarkable deviation from the preirradiation studies. In two of the cases there was a slight flattening of the sugar-time curve, which was not extreme enough to be more than coincidental. Biopsies of the vaginal mucosa were obtained in ten patients before and a few weeks after irradiation. The specimens obtained prior to irradiation corresponded in all respects to postmenopausal vaginal mucosa. No definite change after irradiation could be found, even in patients showing marked clinical improvement.

New York State Journal of Medicine, New York

37: 1357-1418 (Aug. 1) 1937

Some Notes on Poisoning by Clitocybe Dealbata (Sow.) Var. Sudorifica (Peck). S. E. Jelliffe, New York.—p. 1357.
Nontraumatic Cystoscopy. J. B. Clark, New York.—p. 1362.
Protamine Zinc Insulin: Clinical Experiences. J. F. Hart, Bronx.—p. 1365.
Practical Aspects of Gallbladder Disease. J. R. Twiss, New York.—p. 1371.
Methods of Admission and Discharge in New York State Hospitals. B. Pollack, Rochester.—p. 1375.
Some Problems in Head Injuries. F. Schuck, New York.—p. 1380.
Thevetin in Postoperative Thyroid Crisis and Complicating Bronchopneumonia: Case Report. L. W. Gorham, S. J. Martin, C. C. Nuckols and J. C. McClintock, Albany.—p. 1385.
*Peripheral Vascular Disease: Simple External Suction. J. Tenopyr and B. G. P. Shafiroff, Brooklyn.—p. 1387.

Peripheral Vascular Disease.—Tenopyr and Shafiroff constructed a simple suction device for the treatment of peripheral vascular disease. The apparatus can be easily assembled in any hospital and can be more generally used by the profession with the knowledge that the same physiologic benefits can be obtained as with a commercial pattern. It consists of the regular portable suction machine used for surgical aspiration connected to an airtight chamber or boot by rubber tubing. Before the extremity is inserted into the boot, a properly fitting nonconstricting rubber tube encircles the leg or thigh. These tubes resemble in appearance the inner tube of an automobile tire and are of various sizes. The extremity encircled by its inflated tube seals the proximal end. The outlet on the boot is connected to the suction machine by pressure tubing. The button on the suction base permits the patient to start and stop the negative pressure when the treatment period is ended or the sensation of pain is present. Treatments are given at minus 30 to minus 50 mm. of mercury maintained continuously for from one-half to two hours, according to the patient's tolerance. It is possible to use suction at a continuous constant negative pressure by inserting small objects between the tube around the leg and the outside to permit a small air leakage. The clinical results are a confirmation of the beneficial effects reported by other workers with the passive vascular exercise machine. Relief from pain was noted in twelve of the sixteen cases treated by this method: three of Buerger's disease, twelve of diabetic arteriosclerosis and one of severe frostbite of the lower extremities. Capillary ecchymosis directly due to suction developed in one case. Two cases of gangrenous toes, in which amputation was considered, healed completely. Six arteriosclerotic patients reported relief from pain and improvement in walking distance. The case of frostbite responded well to suction by improvement in skin texture and relief from persistent coldness of the feet; cessation of pain while walking was also experienced. No other treatment was used in any of these cases during the course of suction therapy.

Psychoanalytic Quarterly, Albany, N. Y.

6: 275-382 (July) 1937

Intelligence and Higher Mental Functions. W. Bischler, Geneva, Switzerland.—p. 277.
Psychoanalysis in Late-Life Depressions. M. R. Kaufman, Boston.—p. 308.
Resolution by Psychoanalysis of Motor Disturbances in an Adolescent. M. Levy-Suhl, Amersfoort, Holland.—p. 336.
Contribution to the Psychology of Menstruation. M. Bálint, Budapest, Hungary.—p. 346.
Escape into Reality: Clinical Note on Spontaneous Social Recovery. B. S. Robbins, New York.—p. 353.

Public Health Reports, Washington, D. C.

52: 1105-1134 (Aug. 13) 1937

Occurrence in Serums of Man and Monkeys of Protective Antibodies Against the Virus of Lymphocytic Choriomeningitis as Determined by Serum-Virus Protection Test in Mice. J. G. Wooley, C. Armstrong and R. H. Onstott.—p. 1105.
Note on Comparative Tests Made with Hatch and Greenburg-Smith Impingers. J. M. DallaValle.—p. 1114.
Simple Equipment for Removing Channel Obstructions. R. E. Dorer.—p. 1118.

South Carolina Medical Assn. Journal, Greenville

33: 185-206 (Aug.) 1937

Syphilis Control in South Carolina. J. E. Boone, Columbia.—p. 185.
Some Observations on Errors Made in Diagnosis and Management of Ear, Nose and Throat Conditions. J. W. Jervey Jr., Greenville.——p. 189.

Tennessee State Medical Assn. Journal, Nashville

30: 273-312 (Aug.) 1937

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Fractures: Few Basic Principles of Treatment. R. C. Robertson, Chattanooga.—p. 280.
Obstetric Jurisprudence. H. P. Hewitt, Chattanooga.—p. 286.
Surgical Treatment of Certain Types of Heart Disease. A. Blalock and T. R. Harrison, Nashville.—p. 292.

Texas State Journal of Medicine, Fort Worth

33: 281-344 (Aug.) 1937

Surgical Management of Vesicovaginal Fistulas. V. S. Counseller, Rochester, Minn.—p. 288.
Clinical and Pathologic Features of Tumors Occurring in the Region of the Apex of Lung. J. J. Stein, Hines, Ill.—p. 293.
Injection Treatment of Hernia. H. Seale, Cisco.—p. 299.
*Epilepsy, Its Surgical Aspects: Results Following Air Injection. J. T. Gilbert, Austin.—p. 301.
Cyclopropane Anesthesia: Based on Its Use in 732 Cases. R. F. Bonham, Houston.—p. 306.
Systemic Cryptococcosis, with Report of Case (So-Called Torula Histolytica Infection). G. T. Caldwell, Dallas.—p. 310.
Serum Sensitivity. J. H. Black, Dallas.—p. 316.
Surgical and Orthoptic Treatment of Concomitant Convergent Strabismus. R. K. Daily, Houston.—p. 320.
Primary Lymphosarcoma of the Stomach: Report of Case. D. R. Venable, Wichita Falls.—p. 327.

Surgical Aspects of Epilepsy.—Gilbert points out that by far the greatest benefits that epileptic patients derive from surgery are those offered by neurosurgery in the removal of tumors. Many feel that, in the epilepsy due to trauma, surgery has distinct benefits that it can offer. Foerster and Penefield have shown that, in many instances wherein injury has occurred, extensive cerebral scars exist. The injury-induced epileptic attack begins after a rather long period of time has elapsed from the date of injury, suggesting that the slow contraction of the scar was responsible. The treatment suggested is the removal of the overlying scar tissue, the identification by faradic current of the part of the cortex governing movements in the extremity wherein the attack arises and the radical excision of that portion of the cerebral cortex. Favorable results are reported by these and others doing this operation. Contrary to popular opinion, permanent paralysis does not follow this operation—the temporary paralysis in most instances gives way to almost complete return to normal. The treatment of jacksonian epilepsy due to trauma or atrophy by means of alcoholic injection into or electrical coagulation of the trigger-zone portion of the cortex has been reported with favorable results by Fincher and Dowman. Several cases of

pancreatic adenoma have been reported in which the hypoglycemia produced by such a growth was followed by epileptic attacks. Surgical removal of such adenomas was followed by alleviation of these attacks. So-called essential epilepsy and surgical measures suggested for its control are considered: these include an operation which mobilizes the transverse sinus where the anomalous development has been identified, bilateral adrenal denervation and injection of air. Three cases with epilepsy as part of their complaint are reported in which injection of air was beneficial.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

31: 117-260 (July) 1937. Partial Index

Peculiarities of Tuberculosis Problem in India. C. A. Sprawson.—p. 128.
Tuberculosis in Native Employees of Gold Mining Industry (Rand). A. D. Pringle.—p. 136.
Tuberculosis and the Empire. S. Lyle-Cummins.—p. 140.
Care and After-Care of Tuberculous Among the European Mining Population of the Rand. A. D. Pringle.—p. 144.
Tuberculosis and City Environment. F. Heaf.—p. 154.
Environmental Factors in Care and After-Care. P. Varrier-Jones.—p. 157.
Tuberculosis Activities in Canada. R. J. Collins.—p. 169.
Function of Hospital in Tuberculosis Problem. L. S. T. Burrell.—p. 181.
Place of Occupational Therapy in Treatment of Tuberculosis. Gloria Langmaid.—p. 199.
Resettlement of the Tuberculous Ex-Service Man. J. B. McDougall.—p. 202.

British Medical Journal, London

2: 101-150 (July 17) 1937

*Prontosil in Treatment of Erysipelas: Controlled Series of 312 Cases. W. R. Snodgrass and T. Anderson.—p. 101.
*Agranulocytosis and Para-Aminobenzene Sulfonamide. C. J. Young.—p. 105.
Food Poisoning: Its Epidemiology and Bacteriology. E. R. Jones.—p. 106.
Sodium Chloride Content of Cerebrospinal Fluid in Tuberculous Meningitis. J. Ingham.—p. 111.
Effect of Heat and Ultraviolet Radiation on Iso-Agglutinins in Dried Blood Stains. A. I. Kayssi and W. G. Millar.—p. 114.

Sulfanilamide in Treatment of Erysipelas.—Snodgrass and Anderson treated 312 cases of erysipelas under controlled conditions with ultraviolet radiation, sulfanilamide, ultraviolet radiation and sulfanilamide or scarlet fever antitoxin. There was an even distribution of the individual cases in the treatment groups in respect of factors known to influence the course of the disease: the duration of the disease before admission to the hospital, the age of the patient, the severity of the infection and associated diseases. The average case dosage of sulfanilamide was 5 Gm. and the average duration of treatment was two days. Treatment was given during the acute stage only and was not maintained after the subsidence of the local lesion and the cessation of fever and toxemia. Cases in which sulfanilamide was employed showed better results in respect to the duration of the spread of the local lesion, the duration of primary pyrexia and the duration of toxemia. The benefits due to sulfanilamide in erysipelas are statistically assessable and are great enough to render its use advisable until some better form of treatment is available. The action cannot on the whole be termed dramatic.

Agranulocytosis and Sulfanilamide.—A consideration of the formula of sulfanilamide suggested to Young the possibility that this drug might be capable of producing agranulocytosis. It was decided to make observations on the leukocytes in sulfanilamide-treated patients. Complete agranulocytosis with fatal result occurred in the second case investigated. While the possibilities are obvious, it naturally cannot be determined whether this occurrence was or was not due only to the administration of the drug. The patient was a man of 53 suffering from acute rheumatism with pains of the joints and pyrexia. There was a history of previous attacks in 1901, 1908 and 1914. The condition failed to respond to salicylates, and sulfanilamide (3 Gm. daily for eighteen days) was given. At the end of this period the clinical condition had deteriorated, the temperature running at a higher level than before, and treatment was stopped. Four days afterward complete agranulocytosis was found, and culture of the blood, which had given no growth three weeks previously, now gave hemolytic Staphylococcus aureus and Streptococcus viridans. The patient died on the following day. Cases of agranulocytosis have been recorded in which no drugs appear to have been taken and no obvious cause could be found, so that a definite conclusion with regard to the causation in the present case is not justified. The only drug of the benzene ring administered within twenty-four days of the development of agranulocytosis was sulfanilamide. The agranulocytosis appeared to be either of the idiopathic type of unknown etiology or to be due to sulfanilamide.

East African Medical Journal, Nairobi

14: 119-152 (July) 1937

Kikuyu Diet. T. F. Anderson.—p. 120.
A Portable Steam Disinfestor. R. E. Barrett.—p. 132.
Morbid Adhesion of Placenta in Native (M'taita) Woman: Case. P. G. Preston.—p. 134.
Mitral Stenosis in Native Girl: Case. F. J. Wright.—p. 137.

Indian Medical Gazette, Calcutta

72: 393-456 (July) 1937

Teleroentgenography of the Heart in Epidemic Dropsy. R. N. Chopra, R. N. Chaudhuri and P. C. Sen Gupta.—p. 393.
Endemic Fluorosis in Nellore District of South India. H. E. Shortt, C. G. Pandit and T. N. S. Raghavachari.—p. 396.
Effects of Injections of Milk Preparations in Leprosy. S. Lal Sarkar and B. Madhab-Bhattacharya.—p. 398.
Cholera in Kashmir in 1935, with Especial Reference to Certain Aspects of Value of Protective Inoculation. G. M. Millar and G. Mohi-ud-din.—p. 402.
Results of Splenectomy for Tropical Splenomegaly: Analysis of Thirty-Three Cases. A. N. Palit.—p. 403.
Sodium Evipan Anesthesia. A. C. Dey.—p. 408.
Short Note on Diagnosis of Pulmonary Tuberculosis. D. R. Dhar.—p. 409.
Acute Inflammation of Attic: Its Diagnosis and Treatment. A. Rashid.—p. 410.

International Journal of Psycho-Analysis, London

18: 125-372 (April-July) 1937

Theory of Therapeutic Results of Psychoanalysis: I. E. Glover.—p. 125.
Id.: II. O. Fenichel.—p. 133.
Id.: III. J. Strachey.—p. 139.
Id.: IV. E. Bergler.—p. 146.
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Unconscious Functions of Education. E. Glover.—p. 190.
Further Observations on Clinical Picture of "Psychogenic Oral Aspermia." E. Bergler.—p. 196.
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Affects in Theory and Practice. Marjorie Brierley.—p. 256.
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Dream Symbolism of Analytic Situation. M. Steiner.—p. 294.

Journal of Physiology, London

90: 113-256 (July 15) 1937

Secretory Response of Posterior Pituitary to Need for Water Conservation. A. Gilman and L. Goodman.—p. 113.
Maintenance of Ovarian and Luteal Function in Hypophysectomized Rabbit by Gonadotropic Hormones. J. M. Robson.—p. 125.
Maintenance of Pregnancy and of Luteal Function in Hypophysectomized Rabbit. J. M. Robson.—p. 145.
Distribution of Chloride in Frog's Skeletal Muscle Immersed in Saline Solution. M. Grace Eggleton, P. Eggleton and A. M. Hamilton.—p. 167.
Evidence for Electrical Transmission in Nerve: Part I. A. L. Hodgkin.—p. 183.
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Action Potentials Recorded from Unstriated Muscle of Simple Structure. C. M. Fletcher.—p. 233.
Vomiting Produced, in the Cat, by Ligation of Mesenteric Vein. K. J. Franklin and A. D. McLachlin.—p. 254.

Lancet, London

2: 239-300 (July 31) 1937

Arterial Pulse in Health and Disease. C. Bramwell.—p. 239.
Alkalosis with Disordered Kidney Functions: Observations on Case. R. A. McCance and E. M. Widdowson.—p. 247.
Dacryocystorhinostomy. R. E. Wright.—p. 250.
Relation of Vitamin E to Anterior Lobe of Pituitary Gland. M. M. O. Barrie.—p. 251.
*Extreme Degree of Leukocytosis in Whooping Cough. W. J. Pearson and G. H. Newns.—p. 254.

Extreme Leukocytosis in Whooping Cough.—Pearson and Newns cite a case of whooping cough with a high leukocyte count (145,000 per cubic millimeter) and a relative increase in the lymphocytes. This feature of the blood picture is therefore much more valuable diagnostically than either the propor-

tion of lymphocytes or the level of the leukocyte count. Unlike those in lymphatic leukemia, these were mature in form. Such high counts are extremely rare and seem to be associated with a complicating bronchopneumonia. In the present case there is little evidence that it has influenced the blood picture.

Journal de Médecine de Bordeaux et du Sud-Ouest

114: 121-180 (Aug. 7-14) 1937

Erythrodermia Desquamativa. Boisserie-Lacroix.—p. 121.
*Meningeal Hemorrhage of the New-Born. M. Rivière.—p. 129.
Subarachnoid Meningeal Hemorrhages of Children (Except the New-Born). M. Traissac.—p. 145.

Meningeal Hemorrhages of the New-Born.—Rivière discusses the meningeal and ventricular hemorrhages which, because of their anatomic importance, may give rise to clinical symptoms. He disregards the microscopic meningeal hemorrhages, which according to Tassovatz occur in ninety-five out of 100 normal deliveries. The incidence of meningeal hemorrhages that cause clinical symptoms has been estimated differently by various authors. Whereas Waitz judged them to be 11 per hundred, Tassovatz estimated them at 0.05 per hundred. In summarizing his observations the author says that their incidence may be fixed at about 1 in 100 cases. Their etiology is dominated on the one hand by syphilis and prematurity, often concurring, and on the other hand by obstetric traumatism. The etiologic responsibility is about equally divided between the predisposing factors (syphilis and prematurity) and the trauma. There are four chief mechanisms: (1) intracranial venous hypertension of circulatory origin, (2) sudden thrusts of the cerebrospinal fluid in the arachnoid spaces, (3) ruptured vessels in the cerebellar tentorium and (4) in exceptional cases direct vascular lesions by pieces of bone. The symptomatology differs according to circumstances. There may be real or apparent death or atypical symptoms of muscular hypertension with attacks and clonic convulsions. The cortical and bulbar centers may be inhibited or irritated by a subdural hematoma. The ventricular hemorrhages become manifest by stupor; the signs of cortical irritation do not appear until later. The clinical diagnosis can always be corroborated by lumbar, suboccipital or ventricular puncture. The immediate prognosis is grave in that the mortality exceeds 35 per cent. The late prognosis is indefinite if suitable treatment has not been employed, for a large number of encephalopathies derive from intrapartum meningeal hemorrhages. The prophylactic treatment should ameliorate the predisposing factors by combating syphilis and prematurity and should make efforts to reduce or suppress the obstetric traumatism by careful choice of the interventions. The curative treatment should decompress the centers by lumbar, suboccipital or ventricular punctures. They should be repeated as often as signs of intracranial hypertension exist. Hemostasis is produced by assuring the normal play of respiration and by injections of hemostatic serum or of maternal blood. This treatment, which relieves the cortex of the compressive and destructive action of the subdural hematoma, seems to improve greatly the late prognosis of the meningeal hemorrhages of the new-born.

Journal de Médecine de Lyon

18: 423-446 (Aug. 5) 1937

*Tuberculous Tracheobronchial Adenopathy with Rapid Progress in Young Adults. C. Roubier.—p. 423.
Frequency and Dangers of Unrecognized Foreign Body of Respiratory Tract. P. Mounier-Kuhn.—p. 435.

Tuberculous Tracheobronchial Adenopathy in Young Adults.—Roubier says that all authors agree that tuberculous tracheobronchial adenopathy is a rarity in adults in France. Whereas in young children the involvement of the lymph nodes often predominates over the pulmonary lesion, in adults it is usually the adenopathy, which is insignificant compared to the pulmonary lesion. To be sure, there are exceptions to this general rule; for instance, in young adults one may observe, although rarely, adenopathies that consist of enormous caseous masses in the mediastinal lymph nodes and in those around the pulmonary hilus, much like those that are observed in young children. In this paper the author describes the clinical history of a young adult, aged 19 years, who had tuberculosis of the lymph nodes. The process, the total duration of which did not exceed eight months, evolved in three periods. During the first period there existed an adenopathy of the lymph nodes of the left pulmonary hilus. This process was accompanied by continuous fever. During the second period the tuberculosis extended to other groups of lymph nodes. During the third, the terminal, period the lung became involved. On the basis of serial roentgenologic examinations and of the necroptic observations, the author concludes that the primary tuberculous process was in the lymph nodes and that the lung became involved only secondarily. He points out that this is a case of primary tuberculous infection of an adult which is comparable in all points with those which during the World War were often observed in the representatives of the primitive races, particularly the Senegalese.

Presse Médicale, Paris

45: 1179-1186 (Aug. 14) 1937

*Oral Administration of Ouabain in Treatment of Cardiac Insufficiency. S. Livieratos and N. Kisthinios.—p. 1178.
Surgical Organization of Hospitals and Operative Blocks. G. Renon.—p. 1180.

Oral Administration of Ouabain in Cardiac Insufficiency.—Livieratos and Kisthinios point out that the administration of ouabain by the oral route was already recommended by Vaquez but that later it was abandoned in favor of the intravenous injection. After remarks about the intramuscular injection in which they mention the toxic effects on the muscle, they give their attention to the oral administration, citing the experimental studies of Dimitracoff and others, which proved that the oral administration of strong doses produces results that are comparable to those of intravenous injection and that this mode of administration should be resorted to whenever the intravenous administration is impossible, such as in the treatment of cardiac insufficiency. On the basis of these observations, the authors decided to try the oral administration of ouabain in advanced cases of cardiac insufficiency, to replace the formerly employed intravenous injection of the substance. In about twenty cases they used a 2 per cent solution of ouabain, giving from 20 to 25 drops twice a day, in the morning before breakfast and in the evening before retiring. The patients tolerated these doses well and the condition commenced to improve on the following day. Although stronger doses have been recommended by some authors and in the literature accompanying the preparation, the authors warn against larger doses, since they may provoke undesirable complications without being more efficacious against the cardiac insufficiency. The indications for the oral administration of ouabain are the same as those for the intravenous injection, except in the urgent cases, in which nothing can replace the intravenous injection. To be sure, the oral administration of ouabain is not an infallible method, for there are cases in which it fails. If, after two or three days of oral medication, the desired improvement has not been obtained, the intravenous method should be instituted without further delay.

Dermosifilografo, Turin

12: 273-300 (July) 1937

*Death from Application of Salicylic Acid Salve: Case. G. Sannicandro.—p. 273.
Cutaneous Gangrene of Streptococcic Origin: Experimental Study of Case. L. Peruccio.—p. 282.
Nonvenereal Diseases of Genitalia: Cases. C. Pisacane.—p. 286.

Death from Application of Salicylic Acid Ointment.—According to Sannicandro, the skin of children is extremely sensitive to the application of preparations containing salicylic acid. He reports the case of a child, aged 7 years, who entered the clinic in excellent health except for the fact that he was suffering from benign psoriasis at the trunk, knees and elbows. An ointment containing 5 per cent salicylic acid was applied to the psoriatic areas of the skin. The patient was placed in bed covered with impermeable sheets. Twelve hours later he showed a grave condition with intense vomiting, fever, nervous symptoms, hyperdyspnea, acidosis and coma. Tests showed that there was salicylic acid in the urine and cerebrospinal fluid. The amount of sugar in the blood was normal. All treatments failed. Death occurred forty hours after application of the ointment. At necropsy it was found that the skin, both psoriatic and normal, was the seat of a swelling process which explained the exaggerated passage of the acid to the body.

The brain and viscera, especially the liver and kidney, were the seat of vascular congestion and tumefaction. The author points out the danger of applying salicylic acid preparations to children. He also points out the fact that the therapeutic dose of salicylic acid in adults varies with the individual, according to the presence or absence of a congenital or acquired sensitivity.

Policlinico, Rome

44: 1593-1636 (Aug. 23) 1937. Practical Section

*Bactericidal Power of Gastric Juice: Relation Between Acidity and Bactericidal Power of Gastric Juice. A. Sebastianelli.—p. 1593.
Blood Transfusion in Clinical Medicine. M. Lusena.—p. 1602.

Bactericidal Power of Gastric Juice.—Sebastianelli studied the relation between gastric acidity and the bactericidal power of the gastric juice. His researches were carried out for three consecutive years on several thousand specimens of gastric juice in normal or in pathologic conditions. The juice was withdrawn in all cases from fasting stomachs immediately before and for two hours after administration of a broth meal. In all cases the gastric juice was neutralized if it was not neutral. The bactericidal power of the juice was determined by the action of the latter on a 1:250,000 solution of a twenty-four hour bouillon culture of colon bacilli in vitro. According to the author, there are two types of bactericidal power of the gastric juice. The first type is a property of the juice. It is independent of the antiseptic properties and production of the gastric hydrochloric secretion. It depends neither on the intensity of free and total acidity nor on the presence of a normal gastric secreting reaction to a standard stimulus. The second type of bactericidal power of the gastric juice is related to the intensity of gastric acidity. It is of less importance than the proper bactericidal power of the gastric juice. In the absence of the latter, an intense acidity of the juice is necessary for the maintenance of sterility. An intense acidity of the gastric juice in fasting stomachs is found only in exceptionally rare cases (31 per cent, according to the statements of the author). In these cases the relative bactericidal power causes the same effects on bacteria as those caused by the proper bactericidal power of the gastric juice.

Prensa Médica Argentina, Buenos Aires

24: 1599-1642 (Aug. 18) 1937

Pseudotumoral Lymph Granuloma of Pharyngeal Cavity. D. Brachetto-Brian and P. B. A. Viglino.—p. 1599.
Rheumatism and Rheumatic Patients. M. J. Barilari and M. Castillo.—p. 1603.
Total Thyroidectomy in Irreducible Heart Insufficiency. Teresa Malamud, B. Jussem and Berta Stepankowsky.—p. 1613.
*Arterial Hypertension: Treatment by Diathermy of Carotid Sinus. R. Gorlero Pizarro and P. Levisman.—p. 1625.
Treatment of Heine-Medin Disease. V. C. Girardi.—p. 1628.

Diathermy in Arterial Hypertension.—Gorlero Pizarro and Levisman resorted to diathermy of the carotid sinus in the treatment of arterial hypertension. Patients who improved by rest were excluded. Diathermy was administered by means of an apparatus which consisted of two common electrodes 8 cm. long and 2.5 cm. wide (positive poles) and a common diathermy square plate of 12 cm. (negative pole). The electrodes were placed at the carotid region, whereas the plate was placed at the pectoral region. The diathermic applications were given every other day to patients with a fasting stomach. The first application lasted ten minutes. The duration of the following applications was increased by five minutes for each application up to a duration of thirty minutes. The treatment consisted of six or seven sittings. The group was made up of forty patients. Thirty patients suffered from essential hypertension. The other ten had arterial hypertension from nephrosclerosis. The thirty patients suffering from essential hypertension were relieved from headache and dizziness and became euphoric. The blood pressure, maximal and minimal, was lowered 2, 3 or 4 cm. in twenty patients of the group and hypertension did not change in ten patients. In the group of ten patients who were suffering from hypertension and nephrosclerosis the treatment modified neither the symptoms nor the blood pressure. The treatment is harmless. According to the authors, the factors that induce lowering of essential hypertension are sympathetic reflexes and dilatation of the arteries and veins induced by diathermy of the carotid sinus.

Beiträge zur Klinik der Tuberkulose, Berlin

90: 1-218 (July 22) 1937. Partial Index

Anatomy of Tuberculosis in Connection with Epidemiology: Geographic Pathologic Investigation. M. Straub.—p. 1.
*Significance of Arterial Oxygen Deficit in Pulmonary Tuberculosis for Dosage of Therapeutic Collapse. W. Vorwerk.—p. 87.
Method of Functional Analysis of Respiration and Circulation. G. Zaeper.—p. 115.
*Question of Successive Exacerbations in Miliary Tuberculosis. H. H. Loeschcke.—p. 154.
What Is Meant by Catarrh of Pulmonary Apex? Pathologic Anatomy, Roentgen Pathology and Differential Diagnosis of Tuberculosis of Pulmonary Apex. S. Puder.—p. 168.
Observations on Infectiousness of Erythema Nodosum. M. Haidvogl.—p. 186.
Treatment of Tuberculosis of Mucous Membrane by Carbon Dioxide Snow. H. Eschweiler.—p. 189.

Arterial Oxygen Deficit and Pulmonary Collapse.—Vorwerk says that in most instances the clinical and roentgenologic aspects determine the desirable degree of pulmonary collapse. However, it is difficult to recognize whether the extent of the pulmonary collapse impairs the adequate arterialization of the blood. Increase of the collapse beyond a certain point reduces the favorable therapeutic effect of pneumothorax and other collapse measures. In this connection the author calls attention to anoxemic stimulation of the respiration and many other unfavorable effects of arterial oxygen deficits. Whether arterialization of the blood is complete or not can best be determined by spirography. The author reports his observations with spirography in 100 patients. He tested the arterial saturation by means of the closed gas exchange system of Knipping, in which the patients are changed from the breathing of air to the inspiration of oxygen so that they are not aware of it. Toward the end of the inhalation of oxygen, the vital capacity and the respiratory limits are determined. Spirography was done chiefly in patients who readily developed dyspnea or in those in whom both sides of the lung were involved or in those in whom collapse therapy was done. Several patients were examined before and after an artificial pneumothorax was made. Some patients with bilateral pneumothorax were examined immediately after the filling. The author gives a tabular report of the results of the tests and discusses some of the characteristic cases. He shows that even in normal subjects there may be slight arterial deficits during rest. However, because it is so slight, this normal deficit may be disregarded in the tests. In one of the cases which the author discusses in detail it is shown that the filling of the pneumothorax was not excessive but that the patient required rest, for even slight exertion resulted in incomplete arterialization. He also found that phrenic exeresis is unfavorable from the point of view of respiratory function and arterialization. Whereas the diseased lung is only slightly collapsed, the immobilization is doubtless more complete than is the case in pneumothorax. The blood perfusion of the immobilized side is not greatly restricted. If the other side of the lung is entirely normal, the arterialization is hardly impaired. However, if the other side of the lung becomes involved in the tuberculous process or a pleurisy develops, the greater immobilization with the lesser ventilation on the side on which the diaphragm has been paralyzed may have undesirable results. Moreover, it is inadvisable to combine unilateral phrenic exeresis with pneumothorax on the other side, for even if the pneumothorax is small the limits of the necessary ventilation are readily surpassed. For these reasons the author advises that phrenic exeresis be used more sparingly and that temporary crushing of the nerve be employed instead.

Successive Exacerbations in Miliary Tuberculosis.—Loeschcke says that various clinical manifestations, particularly ophthalmoscopic observations and the fever curve, seem to indicate that miliary tuberculosis develops in successive crops. It was his aim to determine these successive exacerbations in pathologic-anatomic studies on cadavers and then to attempt to find them in the clinical histories. The similarity of two tubercles does not necessarily imply the same age. The degree of caseation seems to be more or less dependent on the age; however, newly caseating, homogeneously appearing foci differ from old, friable caseations. Not every tubercle goes through all the stages of development; for instance, a predominantly fibrous tubercle may later again become exudative.

A direct comparison between the foci in different organs is likewise not permissible, for there doubtless exists in tuberculosis a more or less pronounced organic predisposition; the liver has a tendency to develop productive foci, whereas the adrenals are predisposed to caseation. Nevertheless, in organs of the same circulatory region, such as liver and spleen, a certain uniformity can be observed. If different types of foci are discovered in the lung and in the sphere of the systemic circulation, this does not necessarily imply different ages of the foci, for the doses of bacteria differ widely in both cases. In the lung, the possibility of bronchogenic older disseminations must be considered; only if the dissemination of the older foci is quite uniform can it be assumed that they are of hematogenous origin. For this reason the foci in other organs are of greater value for the detection of successive crops than are those in the lung. Among fourteen cases of generalized, hematogenous tuberculosis, the author found five in which traces of older hematogenous crops could be found. These older disseminations had taken place months or even years before. In the course of miliary tuberculosis, successive crops may be determined by ophthalmoscopic observations. However, these cannot be definitely differentiated in the histologic picture. In some of the cases it was clear that the disseminations were of short duration. It seems that for the development of a miliary tuberculosis not only the large bacterial dose is important but also the sudden and simultaneous dissemination of toxins that impair the capillary walls and thereby favor the dissemination in the tissues.

Strahlentherapie, Berlin

59: 383-562 (July 21) 1937. Partial Index

Intensol Lamp. S. Lomholt.—p. 383.
*Experimental Investigation on Prospects of Gonorrhea Therapy with Alpha Rays. H. Nagell and W. Noethling.—p. 419.
Radiotherapeutic Experiences in Malignant Tumors of Upper Air and Food Passages with Metastases in Regional Lymph Nodes. A. Pagani. —p. 441.
Diagnosis and Therapy of Tuberculosis of Female Genitalia. F. Gál.—p. 513.
*Lesions Caused by Bucky's Irradiations. F. Kalz.—p. 547.
Mode of Development of Necrotic Roentgen Ulcer. B. Dahl.—p. 552.

Prospects of Gonorrhea Therapy with Alpha Rays.—To determine whether the application of the bactericidal alpha radiation has prospects of success in the treatment of acute gonorrhea, Nagell and Noethling investigated what quantities of alpha rays are necessary for the killing of gonococci in vitro. They found that in case of unilateral irradiation of surface cultures from 4 to 60 alpha particles have to be applied to each square micron. In case of fluid mediums and irradiation from all sides it is necessary that each cubic micron of culture medium absorb from 0.01 to 0.4 alpha particles. If about 6 per cent of an alpha particle is absorbed per cubic micron, it may be expected that 80 per cent of the organisms are killed. If thorium X solutions are employed, slightly higher values are found. The authors conclude that ointments which contain from 0.02 to 0.2 millicurie of radon per cubic centimeter should produce some practical results, provided they act several hours each day.

Lesions Caused by Bucky's Irradiations.—Kalz shows that the original contention of Bucky, that severe cutaneous injuries are impossible in the treatment with the extremely soft rays, has only been partly realized. To be sure, there are no severe cutaneous injuries, like roentgen ulcers, but mild atrophies have been observed repeatedly. These atrophies may be accompanied by pigmentated spots or by vitiligo-like loss of pigmentation or by telangiectases. The clinical aspects vary according to the quality and quantity of rays and according to the localization. The author reports several cases of his own observation. In two cases in which irradiations were applied for naevus flammeus, telangiectases developed. Irradiation of a carcinoma was followed by thinning of the skin and depigmentation. The appearance of lentigo-like pigmentation seems to involve a predisposition, for the author observed it in a boy in whom comparatively mild doses had been applied to a naevus flammeus. On the basis of these and other observations the author concludes that in borderline rays, as in the harder roentgen rays, the dosage must be carefully watched. Depending on the quality of the rays and the localization, certain doses cannot be exceeded if impairments are to be avoided.

Wiener Archiv für innere Medizin, Vienna

31: 1-81 (July 31) 1937

*Elimination of Vitamin A in Urine. R. Boller, O. Brunner and E. Brodaty.—p. 1.
*Behavior of Blood Sugar and of Blood Cholesterol After Resection of Thyroid. A. Atnan, E. Fenz and K. Uiberrak.—p. 23.
Automatism with Changing Emersion Block and Transition into Bigeminy. C. Bloch and F. Fischer.—p. 33.

Vitamin A in Urine a Prognostic Sign.—Boller and his associates studied in 321 patients with various disorders the vitamin A elimination in the urine before and after parenteral tolerance tests with a vitamin A preparation. The reactions were nearly always the same before and after the vitamin A tolerance test. It may be assumed that the parenteral administration is necessary only in rare cases; namely, when food is refused or when disturbances in the intestinal resorption may be assumed. Vitamin A is found in the urine in case of icterus with complete closure of the bile duct, in chronic nephritis and nephrosis and in lobar pneumonias before the critical defervesence. In severe cases of hepatic cirrhosis the urine always gives a positive vitamin A reaction; however, it is impossible as yet to detect a definite relationship between the severity of the disorder and the elimination of vitamin A in the urine. The authors assume that vitamin A is eliminated in the urine when both liver and kidney are impaired or when the impairment of one of these organs is so considerable that the other organ becomes likewise involved. By the administration of aminopyrine it is possible to reduce the elimination of large amounts of vitamin A in the urine or completely stop the elimination of small amounts. The determination of the elimination of vitamin A in the urine is of diagnostic value in hepatic and renal diseases. Regarding the prognostic value of the test, the authors say that, on the basis of their experiences, the elimination of vitamin A in the urine must always be regarded as an extremely serious sign.

Sugar and Cholesterol in Blood After Resection of Thyroid.—Atnan and his collaborators found that after operations on the thyroid the postoperative increase in the blood sugar (in contradistinction to the majority of operations in other locations) takes a peculiar course: the hyperglycemia decreases, not as otherwise after from three to five hours, but shows a tendency to remain increased for a considerable period (frequently for twenty-four hours) or to increase again repeatedly. This characteristic behavior is dependent neither on the type of the anesthesia nor on the type of the thyroid disorder. It is assumed that the prolonged hyperglycemia might be explained as the result of the surgical trauma, by which large amounts of thyroid incretion are probably forced into the blood; and the peculiar increase in temperature, frequent perspiration, tremor and tachycardia may be due to this same factor. The result of studies on the cholesterol content of the blood before and after the operation seems to confirm this assumption. It was found that after operations on the thyroid the cholesterol content of the blood decreased much more than after other operations. The iodine content of the blood was determined in two cases after a surgical intervention on the thyroid and it was found that the values had almost doubled. The authors think that this too seems to indicate a postoperative increase in thyroid incretion following operations on the thyroid.

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Continued Experiences with Sulfur Oil (Sulfosin) Treatment. K. Schroeder.—p. 744.
Rectal Cancer Treated with Radical Operation at Odense County and Town Hospital from 1922 to 1936: Cases. S. Müller.—p. 768.
Some Experiences with Local Light Treatment of Lupus Vulgaris. P. Jacoby.—p. 771.
Significance of Roentgenography of Ankle Joint in Oblique Projection in Malleolar Fractures. E. Husfeldt.—p. 788.
Weil's Disease: Case with Anuria. Gerda Biilmann.—p. 797.
Pulmonary Actinomycosis: Three Cases. K. Søndergaard.—p. 801.
*Sedimentation Reaction in Different Forms of Cancer, Especially with Regard to Its Prognostic Value: I. Cancer of Breast. P. Jacoby and J. Spotoft.—p. 811.

Prognostic Value of Sedimentation Reaction in Cancer.—Jacoby and Spotoft conclude that, if after treatment of cancer of the breast control examinations constantly disclose an increased sedimentation reaction, there is great probability of occult metastases and that these increased sedimentation values are an unfavorable sign.